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ABSTRACT

A conscious regard for the appropriateness of certain facilities should be fundamental in the design process of the city school site. There, within an extremely tight piece of real estate, a great many things must take place with not always room enough for all events. In addition to the requirement for program priorities and efficient use of space, the city school site is also responding to its requirement of being a part of community life. The urban school site is extending itself into the community by lending itself to community use. Meeting rooms, headquarters space for volunteer groups, and shared resource facilities and outside spaces are being developed with greater participation of the community in mind. Furthermore, the space around a city school is now recognized as an excellent educational opportunity to display the balance between man and his environment. School sites are locations where students can gain a greater understanding of the myriad processes and functions that are interwoven into the urban fabric, and their possible effects on the viability of the urban dweller. (Photographs may reproduce poorly.) (Author/MLF)

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SITE DEVELOPMENT GOALS FOR CITY SCHOOLS

A Report From:

The American Society of Landscape Architects Foundation

Developed in Cooperation with the

Educational Facilities Laboratory
and The American Conservation Association

Based on Research By:
Theodore Osmundson, ASLA
Gary O. Robinette, Executive Director, ASLA Foundation
Edited by:
Richard Dee, ASLA
Editorial Assistance by:
Sherwood Cohn
Carol Carlin

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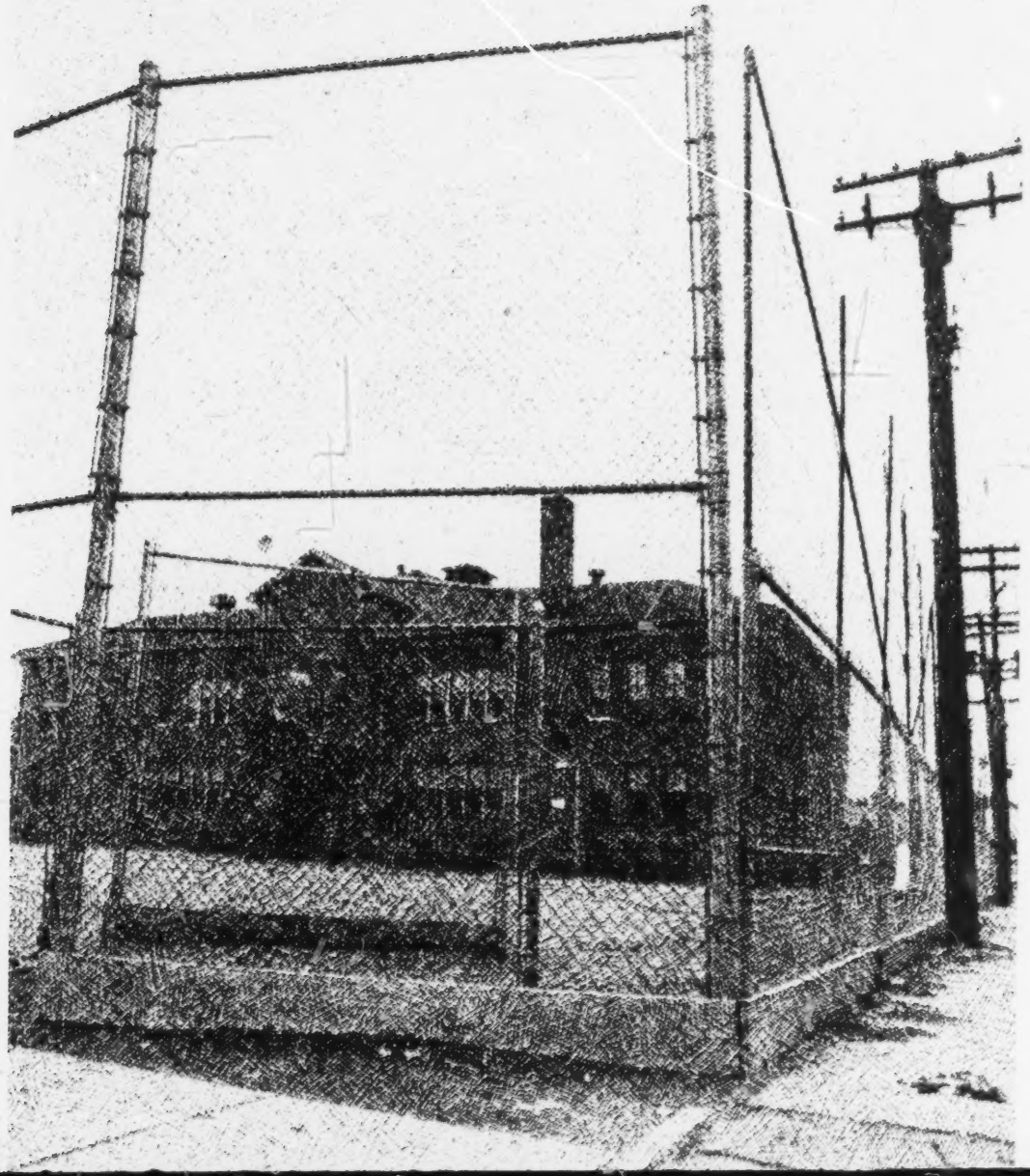


I. INTRODUCTION

Urban schools suffer so many problems that a discussion on site development of city schools may at first glance seem superfluous. However, a close inspection of the subject shows that the land around an urban school is an important contribution to the physical and educational upgrading of a neighborhood. A well-designed school site can stimulate the attitudes of a neighborhood for its own self-improvement or act as a catalyst for urban renewal. This being so, site development costs for urban schools must be evaluated in terms of their potential contribution to the total image of the entire neighborhood.

Site development is a cost item easily forsaken by administrators trimming school construction budgets. The weight of urgent needs for space, equipment and social services in c es crushes site development budgets to the bottom of priority lists, thus perpetuating a cycle of dreary school surroundings and their depressing effect on a neighborhood.

Now is the time to turn this cycle around and build the kind of school sites that will upgrade and stimulate physical and environmental education programs and boost the quality of life in each school's community. And with land costs spiraling, it becomes even more essential that each urban school site be used to its fullest potential.

Theoretical solutions to the urban school site dilemma are at least as numerous as its problems. Many methods have been suggested and tried to overcome the characteristic limitations of lack of space and subsequent overcrowding, small site-development budgets, vandalism, and stifling uniformity. Although many good projects never get beyond the planning stage, they can point the way toward solutions that may be built in the near future.

A large percentage of the urban school site is usually occupied by the school building, with setback requirements, service and access demands taking up still more space. The urban school's special requirements and its influence on the surrounding area have been most influential in determining site patterns.

The school building's interior layout has often dictated the arrangements of related site functions. For example, the outdoor recreation facilities are normally located immediately adjacent to interior athletic facilities.

In most cases, the school site has assumed added significance in the city because the school property comprises most of the community openspace and recreation facilities. Certain structures and functions seem to be constants in optimum school site development, while others are optional, depending on educational program and community desires. Among the former are:

- The school structure itself
- Space for physical education and athletics
- Recreation space
- Service and parking areas
- Legal setback requirements
- Site entrances

The optional requirements include:

- Outdoor education areas
- Community facilities
- Landscaping and planting
- Temporary or permanent building expansion
- Outdoor eating facilities
- Ceremonial space

The form and content of successful urban school sites have grown out of the school's educational programs. These programs have recognized that the teaching potential of the urban school does not and should not stop at the building wall nor at the school property line; the site components are nearly as important as the school structure itself. In their most effective applications, these components have embodied the educational concept of the school, become an extension of the building itself, and accurately reflected the community and its inhabitants.

Among the obstacles to developing an effective urban school site, the financial is probably the most crucial since it is comprised of land acquisition, site development budgets, design fees, and a maintenance budget to preserve facilities after development. But other problems are equally knotty. The social, cultural, educational, administrative and physical enigmas are seldom completely solved, although alert city school boards, administrators and designers sometimes find ways to circumvent them. Although few schools have overcome all the difficulties and developed a near-perfect site, some outstanding solutions to parts of the overall problem are being developed. These solutions can encourage the change in attitude necessary to fully realize the responsibility that an urban school site must meet.

Many urban school boards are faced with similar circumstances and a limited choice of "avenues" from which to choose their potential directions. Basically, these avenues of choice fall into one of three categories:

1. Renovate existing site facilities
2. Acquire additional space nearby
3. Develop an entirely new facility on a new site; either separately or with others.

Regardless of the methods open to city school expansion or new development, there are certain basic relationships, which are unique to city schools, that should underscore the development and evaluation of the design plans. Briefly, these fundamentals are:

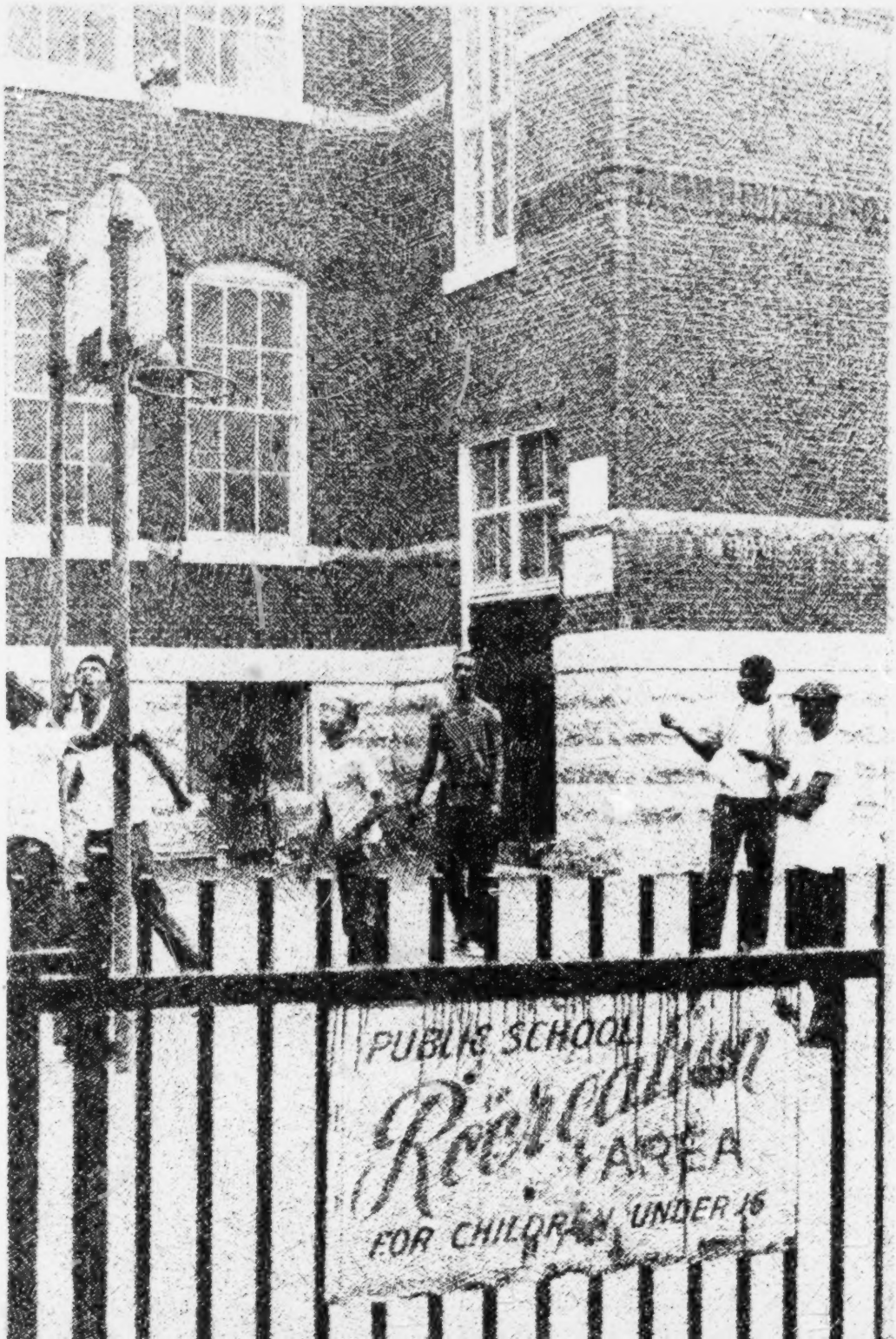
ESTABLISHING PRIORITIES. The important factor is to develop facilities which take into consideration the play and social characteristics of the urban student and the ethnic backgrounds and interests of the surrounding community.

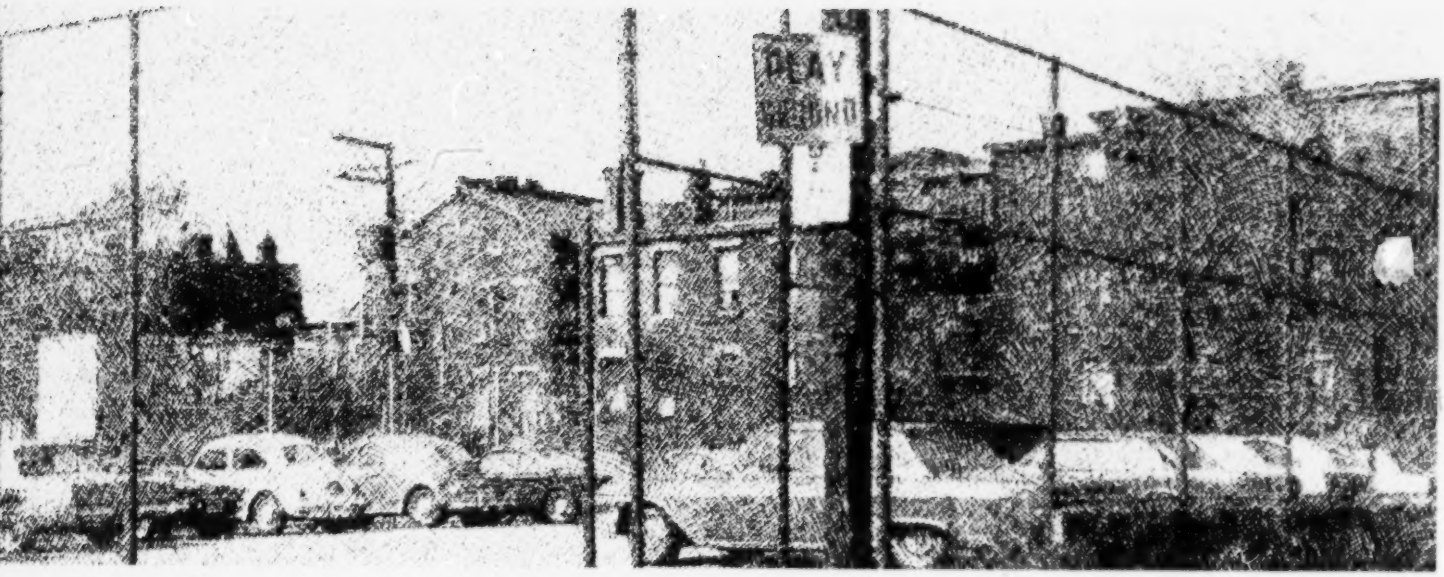
USING SPACE EFFICIENTLY. With land costs rising and increased competition for any open space within the city, it is mandatory that each area be used with greatest efficiency. Any vacant or "unused" space must be investigated for possible inclusion into the school program. Areas such as rooftops, vacant lots, highway rights-of-way, and marginal parcels should not be wasted.

DEVELOPING COMMUNITY RELATIONSHIPS. The city schoolyard is a major piece of open space and should be a social center and focus for the surrounding community. It should avoid a "fenced-out" image in deference to a more hospitable and open appearance. This is especially true from a standpoint of vandalism. That which sets itself off from the community will never become a part of it, and it will be treated as an intruder.

EXPRESSING ENVIRONMENTAL RELATIONSHIPS. Recent emphasis and interest in relationships between man and the environment have outlined the necessity of a thorough understanding of this vital balance. Especially in urban areas, these fundamental precepts should be presented as part of an educational program on the school site and its surroundings.

The purpose of this report is to present a series of examples of what many schools are doing to solve their site problems and to meet the above goals. We hope it will encourage additional application of some of the good ideas and will also engender new and inspiring ideas.


PUBLIC SCHOOL
Recreation
AREA
FOR CHILDREN UNDER 16



II. ESTABLISHING PRIORITIES

In general, inner-city students have access to fewer outdoor recreational facilities than suburban or rural children. The recreational facilities on the city school site have, in many cases, assumed greater significance because they are used so intensively and for such long periods of time. Inhabitants of congested areas need outdoor recreational facilities within easy reach of their homes. Property maintenance makes few demands on their time, social obligations may be fewer and without the income necessary to insure mobility, time is apt to weigh more heavily on the hands of city dwellers than it does on their surburban counterparts.

A. APPROPRIATENESS OF ELEMENTS

One of the most evident failures of our urban school sites is that the distinctive recreation needs, patterns and preferences of innercity residents are too often neglected. The difficulties of analyzing the ethnic make-up of a particular neighborhood have compounded the problem of purchasing, designing, installing and maintaining recreational facilities in metropolitan areas.

A publication of the Center for Urban Education, **Public Recreation and the Negro — A Study of Participation and Administrative Practices,** by Richard Kraus, states that "It is clear that Negroes participate much more widely in certain activities than in others, and that their recreational choices fall into relatively clear patterns. These deserve to be examined, both in terms of motivation and opportunity."

Types of recreational facilities should vary on city school sites depending on a variety of factors, such as the recreational goal to be achieved, the age group of the users, whether the activity is active or passive, and the degree and frequency of community usage. The

urban resident has exhibited an intense need and desire for easily accessible recreational facilities. For example, the absence of recreational facilities ranked fifth among the grievances of ghetto residents in the Kerner Commission report. In a study for the Hooper Avenue School in Los Angeles, entitled **Real Goals versus Popular Stereotypes in Planning for a Black Community,** the study team found that recreation facilities ranked high in both observed and expressed needs of school users. Observations indicated that the same need ranked eighth out of sixteen.

The California State Department of Education's 1966 publication on school site analysis and development stated, "The physical education program of a school is the most influential factor in determining the amount of land necessary for the school program." In fact, physical education is a basic part of the total educational program in most nursery, elementary, middle and secondary schools, and is also one of the most important functions of a site and one in which the entire community may be involved.

Recreation enriches life by offering outlets for self-expression, helps develop a person's inherent potential, and in one form or another, constitutes an integral part of most educational programs. Students use many of the skills and concepts learned in physical education classes in conjunction with on-site play facilities during recess periods, at lunch time, before and after school hours and during vacations and on weekends. These outdoor recreation activities and programs give rise to playgrounds, game areas, playfields, or one of the many other types of play and recreational areas.

B. ANALYSIS OF COMPONENTS

The inner-city school site is usually too small to contain all the components demanded by a well-rounded educational program. In such limited areas, not all components can be awarded the space they need, even though none of the essential components should be left off the site, or deferred for later development. To help solve this dilemma, the establishment of use-priorities has helped in sorting out components' various functions, compared them with educational goals, arranged their relative size and, finally, helped decide whether or not they should be included on the site.

Experts studying play and playground facilities recognize play as a continual process and have propounded the view that the most effective facilities provide a series of challenges. New and emerging concepts of play which are being incorporated into the design of school site facilities include greater emphasis on:

- Alterability or modification by the user
- Child-centered equipment and facilities
- The differentiation of equipment designed "for" children and that designed "by" children
- The evolution of a group of items to make things with
- The development of a group of items to be things with
- Dual usage of single facilities
- Joint usage of school site/recreation department facilities
- Provision of facilities on the school site for lifetime sports education projects.

Physical education activities are further divided into three categories:

1. Instructional — The physical education class during the school day;
2. Athletics — Intra- and inter-mural contests, usually after school;
3. Special Contests — Teams limited to gifted students possessing a single, highly-developed skill.

In most cases, at least one, if not all three activity types, should be included in determining the basic priorities of city school sites.

While education needs a variety of exterior facilities in order to accomplish its broad goals, site restrictions and student age levels have been highly influential in determining the types of facilities and development required for them. Generally, play surfaces for physical education have been separated into three groups:

1. Paved or hard-surfaced areas with markings for games such as kickball, volleyball, basketball and dancing;
2. Grassed areas for baseball, soccer, field hockey and football;
3. Apparatus areas (typically paved) to accommodate slides, swings, and seesaws, as well as the newer, more creative equipment.

To a greater extent, artificial surfacing materials are being used on the urban school sites to give greater all-season usage and reduce maintenance.

A chart showing the relationship between recreational activities and physical education goals is contained in the School-Site Standards Study of the Philadelphia Board of Education. This study is based on the premise that an effective and efficient urban school site must be planned from an intentional user benefit ratio for the facilities provided and those that are to use it.

C. PARKING NEEDS

In addition to athletic facilities, parking often appropriates large areas of the city school site. In fact, according to the **Philadelphia School-Site Standards Study,** parking ranks third in land-use on the typical city school site. The report also states that sixty per cent of Philadelphia's elementary school employees drive to work and park on school grounds.

In most cities, parking is not allowed on the streets surrounding the school, thereby curtailing potential off-site parking in the area. In Cleveland, as an example of the further complication of providing parking, no parking is allowed within twenty feet of the school building due to fire regulations.

While inner-city school parking space usually serves only faculty, staff, visitors and service vehicles, provisions have also been made in many instances for parking of bicycles. Los Angeles parking standards state that elementary schools must provide parking space for each member of the staff. Virginia high schools provide parking for staff, and its senior high schools also make parking available for students — usually from four hundred to six hundred parking spaces for three thousand students. But it must be remembered that the two examples illustrate urban areas that are automobile-oriented, low density, and equipped with a limited public transportation system. In any case, a balance should be made which establishes a reasonable minimum of parking which is actually necessary for the operation of the school.

Even then, the only available solution to parking is sometimes the standard parking lot. The Hill School in Philadelphia, however, has used this concept and gone a step further. Realizing the visual effect created by a lot full of cars, they have erected a decorative brick fence to screen the view from the street. This is a refreshing change from the usual chain link fence.

The Buchanan Elementary School in Washington is an excellent example of a school which has been redeveloped with a greater emphasis on the requirements of its surrounding community and the characteristic needs of its students. The school was old and run-down, like many core area school buildings. Its site was bare and surrounded on two sides by a

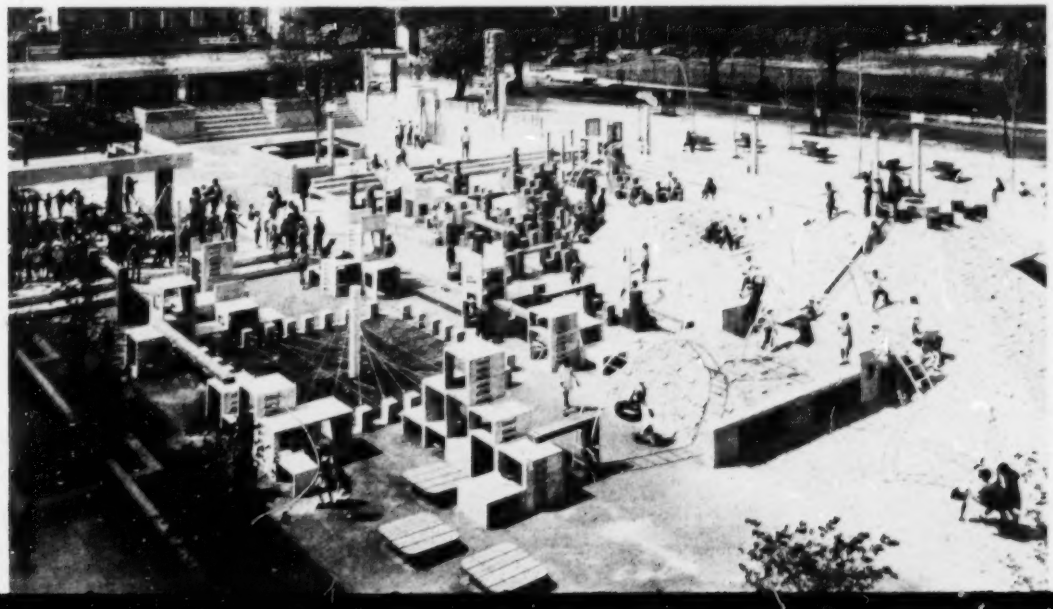
Hill School
Philadelphia, Pennsylvania

chain-link fence. Redevelopment of a community plaza was accomplished through a $388,000. gift from the Astor Foundation.

Development of the Buchanan School site cannot be regarded as complete, however. Little has been done to improve service facilities or the building's main entrance. The energy, time and money were spent on the redevelopment of the school's playground facilities.

Areas to note at the Buchanan School site are.

1. Varied leveling of the site separates adjacent land-use areas.
2. A sunken basketball court, amphitheater and water-spray area compensates for the space shortage and illustrates triple use of a single space. The area is well below street level, and on two sides, steps serve as seats for an outdoor theater. It is also equipped with wall spray jets which transform it into an outdoor shower during the summer.
3. A community sitting area immediately adjacent to the playground is equipped with picnic tables, game pedestals and benches intended for use by residents and by mothers watching their children in the play area. It will eventually be covered by an arbor of shade trees.



Buchanan School
Washington, D. C.

4. Imaginative play equipment developed to accommodate children of all ages includes bridges, towers, swings, cable jungles, ramps and pulleys on wire ramps for sliding and swinging. All equipment is durable, safe and vandal-resistant. Wood timbers, concrete walls, granite cobbles, brick and sand are also used. Sand provides a safe base for all play equipment and is confined in a pit.

Buchanan School
Washington, D. C.

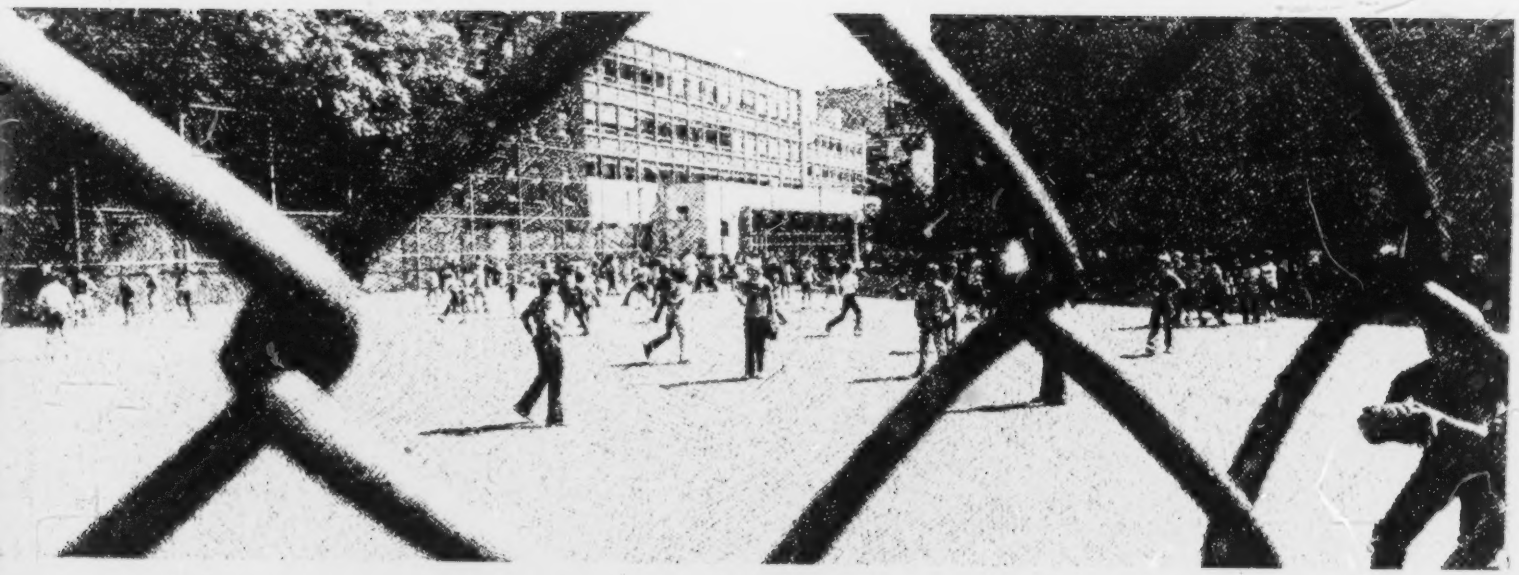
5. A street closing allows access to a junior high school playground directly across the road, providing also an excellent play-street immediately adjacent to both schools. Heavy timbers used to close the street can be moved, but with considerable difficulty.
6. A combined service-recreation building on one edge of the playground accommodates a snack-bar, rest rooms, administrative offices and a storage room for community outdoor recreational equipment.
7. Special fencing is formed by a waist-high concrete wall.
8. The playground is staffed by the Department of Education during school hours, and the Department of Recreation daily after 3:30 p.m. and during summer days and evenings. Initially, the site was completely illuminated, but vandals damaged some of its lighting.
9. Art objects, particularly sculptures by William Tarr, have been incorporated successfully into the school site. Two small concrete abstracts and one monumental casting are designed for climbing. The sculpture has not been vandalized and is used extensively by the children.

Response to the site has been good. In fact, **Progressive Architecture,** June 1968, re-reported that one of the community residents claimed that its development had saved the neighborhood from the violence that followed the assassination of Martin Luther King, Jr.

Mayor Walter Washington of the District of Columbia commented that the school's playground provided "an alternative to throwing rocks." Architect Simon Breines said: "These people are frustrated and furious. They are not stupid. Why spoil something that is so directly and obviously useful? Vandalism against structures is a manifestation of urban social unhappiness with which architects are most directly concerned. Perhaps if our building could be made as relevant, as accessible and enjoyable as these playgrounds, there would be less resentment vented on them."

In summary, the city core residents' recreational desires, needs, patterns and habits often differ markedly from those of the suburbanite. As on the Buchanan School site, these differences must be discovered, recognized and incorporated into facilities design and development if the city school site is truly going to respond to the educational goals of the school and the recreation requirements of the community.

Buchanan School
Washington, D. C.



III. USING SPACE EFFICIENTLY

There is no doubt that one of the major site problems confronting school boards for city schools is providing adequate space for the necessary exterior facilities. Too often, the existing site space is poorly used and inadequate in the facilities it provides. It is essential, therefore, that each square foot of space and the relationships of elements be analyzed so that their greatest effectiveness can be realized.

Circulation into and through the school site is vital and involves students, teachers, staff, parents and community residents. They may be on foot, on bicycles, in automobiles, or in service or maintenance vehicles. This movement pattern, requiring a portion of the crowded school site, varies in direction and intensity hourly, daily and seasonally. Provision must be made for arrival traffic in the morning, for luncheon traffic at noon, and movement during the day for recesses and service, as well as after school for the homebound traffic and for community usage of the site facilities. There is further variation between school day and weekend traffic and the movement generated in the spring or fall, and winter or summer, especially in areas of temperature extremes and heavy precipitation.

On the most successful school sites, traffic flow across open areas has been designated or controlled in an unmistakable manner. The Hooper Avenue School in Los Angeles illustrates this variety and differentiation of traffic:

- access to the site is limited and coupled with school identification;
- access within the site has been plotted to guide movement from place to place and from activity to activity;
- access through the site is provided to allow for greater community involvement and identity.

Methods which have been used for controlling traffic on school sites have included changes of level, fences, planting, and changes of paving surface types and texture.

A. COMPACTION OF COMPONENTS

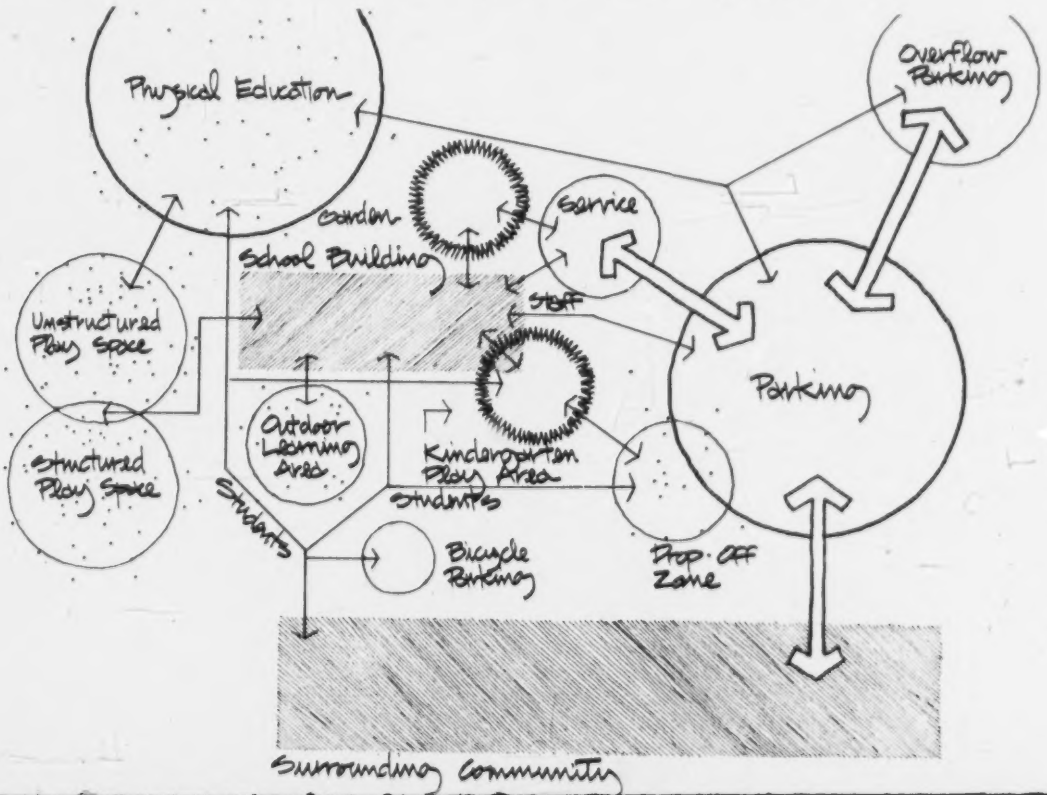
There is no denying the urban students' need for physical education, and when standardized athletic field sizes are limited by lack of space, innovative methods or compaction techniques become imperative.

Standard patterns of component relationships or location do not exist on the urban school site. Each site, each school building, and each community is so distinctive that even the most ordinary components much be designed and located individually.

The following list represents the basic relationships between building functions and site components:

BUILDING FUNCTIONS	SITE COMPONENTS
Kitchen	Service and delivery area.
Gymnasium	Outdoor recreation and athletic facilities with storage areas for community use.
Cafeteria	Outdoor eating areas.
Classrooms	Outdoor education areas — group space.
Auditorium	Amphitheater.
Science Laboratories	Arboretum, outdoor environmental education areas, student planting area.

An optimum functional relationship for the components on a school site is shown in the publication **Site** prepared by Michael Hough Associates for the Ontario Department of Education. Application of these relationships to the specific site to be planned gives an overall direction to the evaluation of component compaction decisions.



Some elements are essential in order to establish visual separation and individuality of the various functions located on an urban school site. Horizontal elements, usually in the form of paving, provide appropriate surfaces. Vertical elements, such as walls, fences or plants, provide buffers between activities and areas. The building itself, or parts of it such as gymnasiums, auditoriums, cafeterias and service wings, has also been used to separate various site components. If classroom wings are used to separate school site areas, care must be taken in the location of recreation elements so that students within the building are not distracted during their studies.

In placing educational components on a tight urban site, the planner has at least three basic alternatives at his disposal. They are:

1. To include fewer components (program reduction)
2. To leave a large area unstructured so that a number of activities can take place in it (multi-purpose concept)
3. To decide which elements are the most necessary and should be included (priority selection).

Another logical alternative is land acquisition, but this is seldom possible in the inner city. A very realistic solution appears to lie in the development of compaction techniques and design criteria that can help accommodate a greater number of site activities.

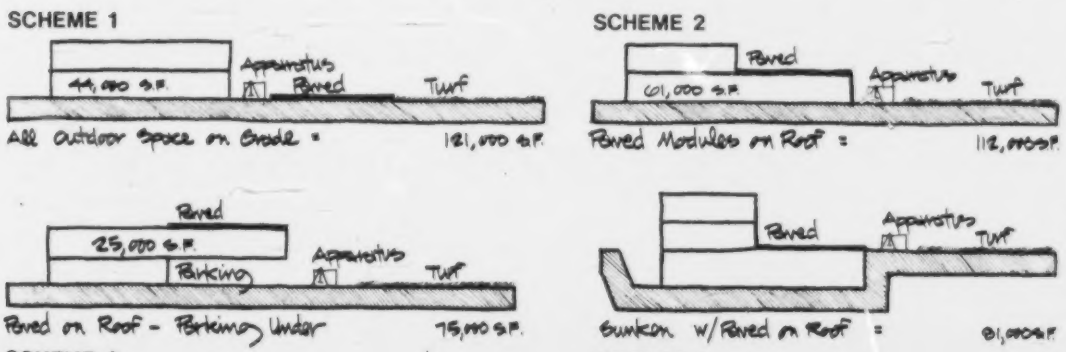
The Philadelphia **School-Site Standards Study** points out the advantages of a smaller, more efficient space:

> "The small developed play area may cost less and operate as satisfactorily as the larger, undeveloped one. For example, contrast a developed 1.4 acre play area with an undeveloped 2.4 acre parcel. Both can accommodate approximately the same number of users. Assume a $200,000. cost for the additional acre (2.4 vs. 1.4) of land, plus $21,780. for an additional acre of blacktop. Assume also the 1.4 acre parcel will cost $9,000. more per acre or $12,600. more for 1.4 acres for development than an undeveloped playground. In this situation, $209,130. will be saved by developing the 1.4 acre play area ($200,000. plus $21,780. minus $12,600.). In addition, provision of climbing apparatus, swings, parallel bars, sand boxes, slides, volleyball courts, basketball courts, dodgeball areas, . . . and multi-use . . . turf areas may provide the facilities for better school recreation programs and neighborhood recreation facilities that will more than compensate for its smaller size."

Component compaction may be accomplished in several ways:

- May be stacked and related vertically.
- Multiple use of a facility; for instance, a daytime parking lot may become a basketball court during the evenings or weekends.
- Fragmentation of the school site elements; for example, younger children may be accommodated in parts of the total adult game area.

School Site Standards Study
Philadelphia, Pennsylvania

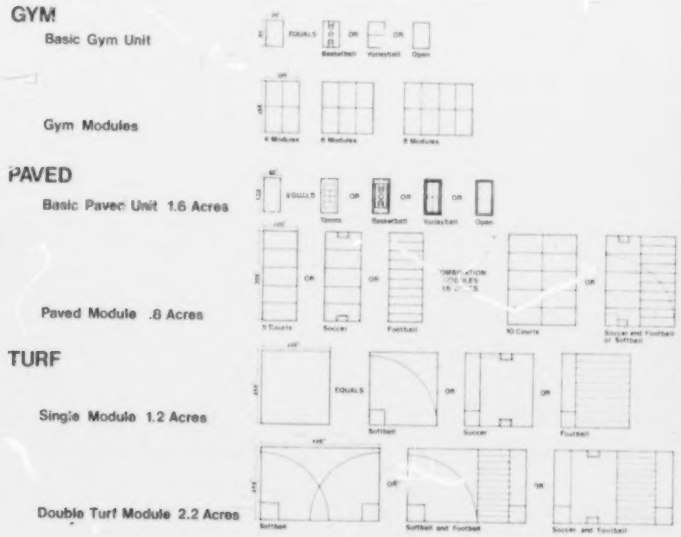


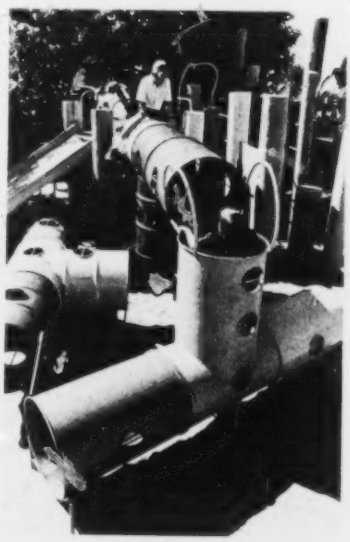
Ball games can be scaled down and played on asphalt. In many cases, basic parts of a game, such as basketball hoops or half-courts, may be substituted for a total set-up.

The North Philadelphia School Facilities Study investigates and illustrates the potential land saving through fragmentation. This "building block" approach provides site choice flexibility by replacing one large site with several smaller ones. It also permits a closer physical integration of the school facilities into community structures.

The Philadelphia **School Site Standards Study** outlines five elementary school site compaction techniques and gives the basic space requirements for selected outdoor activities, listing them in order of space required. This user/benefit comparison can quickly indicate the advantages to actual users served by a facility if certain game areas are provided.

The landscape architectural firm developed a planning model for the Philadelphia School Board based on physical education teaching stations. By planning the layout of the area with modules which are suitable for the greatest overlapping number of game sizes, waste space is minimized and a large variety of functions can be accommodated within the given area.





Left: School Site Standards Study Philadelphia, Pennsylvania

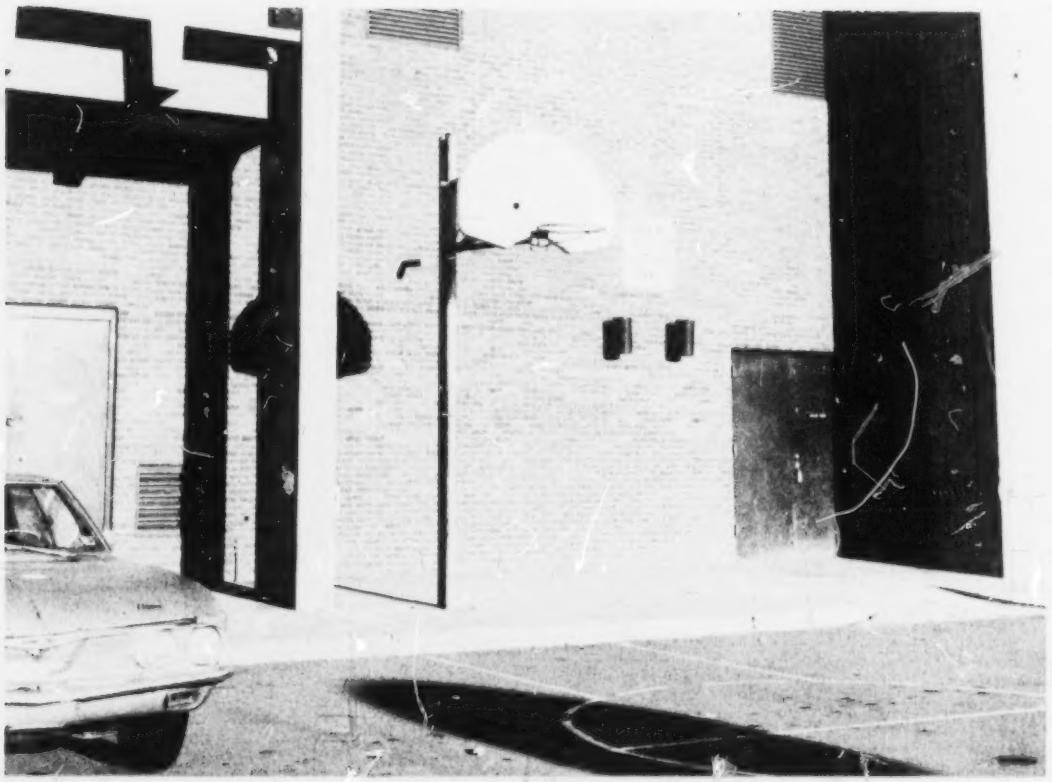
Rt: Milbrae Nursery California

B. HANDLING SERVICE AND PARKING REQUIREMENTS

Any school building requires service, and supplies must be delivered to various areas of its site.

Service entrances onto the site and into the building are usually difficult to visually control. Often, this has meant that service paths cross a segment of the school site, interrupting play facilities. In addition, the site itself may also need certain services, such as groundskeeping, on-site storage space for athletic and recreation equipment, and community-used kitchen or cafeteria materials.

The most successful solutions for service and storage areas have been those that integrated the service requirements with the other components and functions of the school site. At the same time, they have been separated so as not to intrude upon nearby activities.

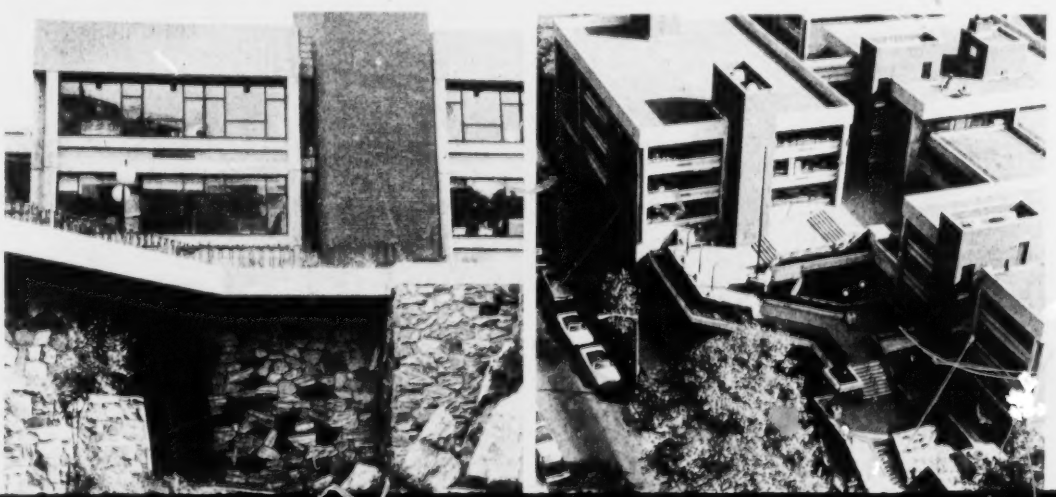


Columbus School
Pittsburgh, Pennsylvania

A fine example of the integration of service with other site components is the Columbus School in Pittsburgh. Here, the service and parking area is also used for recreation after hours. The result is that the entire area is kept visually clear and neat.

In general, problems seem to mount when service areas are located out of sight in a back corner of the school site, for this is when it seems to live up to its image of cans and trash scattered in an unsightly mess. If service areas are located out in the open with simple, direct access to the street, they tend to be kept visually tidy. Such is the planning for the I.S. 195 School in Manhattan, North Kings High School in Brooklyn, and the Morningside School on New York's upper west side.

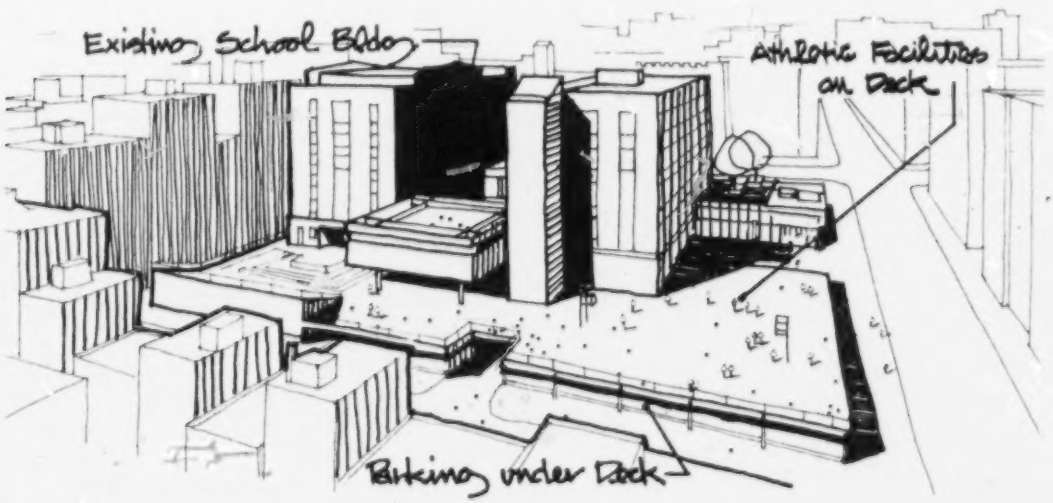
Morningside School
New York City



Parking requirements for urban schools are normally arrived at through an examination of site size, adequacy of mass transit systems serving the school area, and relative density of urban development in the surrounding area. The typical urban site is not automobile-oriented and may provide only minimal parking space or none at all. If on-site parking has been possible, it has necessitated the establishment of priorities and the multiple usage of parking areas.

An example of this multiple usage of parking areas is the Columbus School in Pittsburgh. Located on a steeply sloping piece of "leftover" land, the available horizontal space here is at a minimum. After school hours, the areas used by cars during the day are used for multi-purpose recreation by the surrounding community.

The Far West Laboratory for Research and Development has located its educational center in renovated warehouse space in San Francisco. In this dense urban area, the only way to accomplish both parking and athletic space is to "stack" the two elements. The parking is located on ground level and the athletic facilities on the roof above. This concept has also been proposed for the Joseph Wade Junior High in New York City. As part of the "New Life for Old Schools" concept of the Great Cities Program for School Improvements, this entire school building and site is planned for renovation. Here again, proposed parking is to be located at grade with athletic and playground facilities placed on a roof over the parking.



Joseph Wade Junior High School - New York City

C. EXTENDING EDUCATION OUTDOORS

Often greater efficiency can be gained by using site facilities for functions other than recreation. The site can be used as an extension of the classrooms, for example, and may be categorized as education "in" the out-of-doors and education "about" the out-of-doors. Such subjects as biology, botany, music, dramatics, art, and environmental education can be taught quite effectively outside the classroom. Change of pace in the teaching routine, more room for learning and involvement, stimulation, and even a kind of "advertising" for the school within the community are among the reasons for outdoor education.

Outdoor teaching aids include outdoor classroom areas, a time-line in concrete, maps in the paving around the school, and outdoor amphitheaters for student and community activities, programs and informal meetings.

Because extensive field trips are often difficult, they can be conducted on the site itself. A Los Angeles architect has suggested the development of an "instant field trip" facility, consisting of a concrete pad, equipped with electrical and plumbing connections for mobile exhibits in trailers parked on the site.

D. ATRIUM SITES

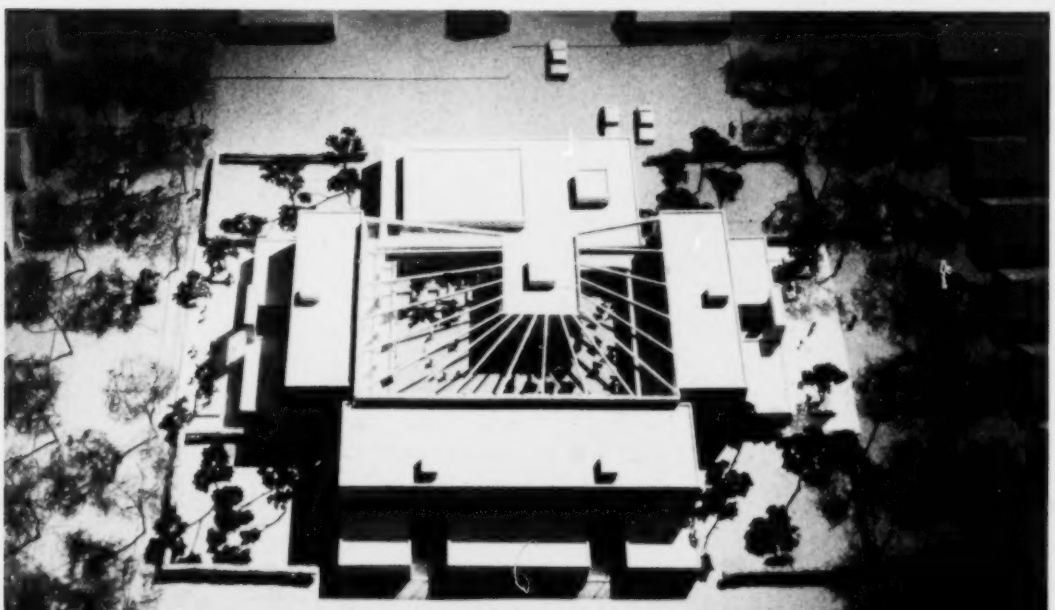
Vandalism sometimes causes designers to introvert the orientation of a school and its site. The school then becomes a wall in which outward-facing windows are superfluous. An open interior court can provide light, observation opportunities, outdoor recreational and educational space in a high quality environment, traffic control, and easy maintenance.

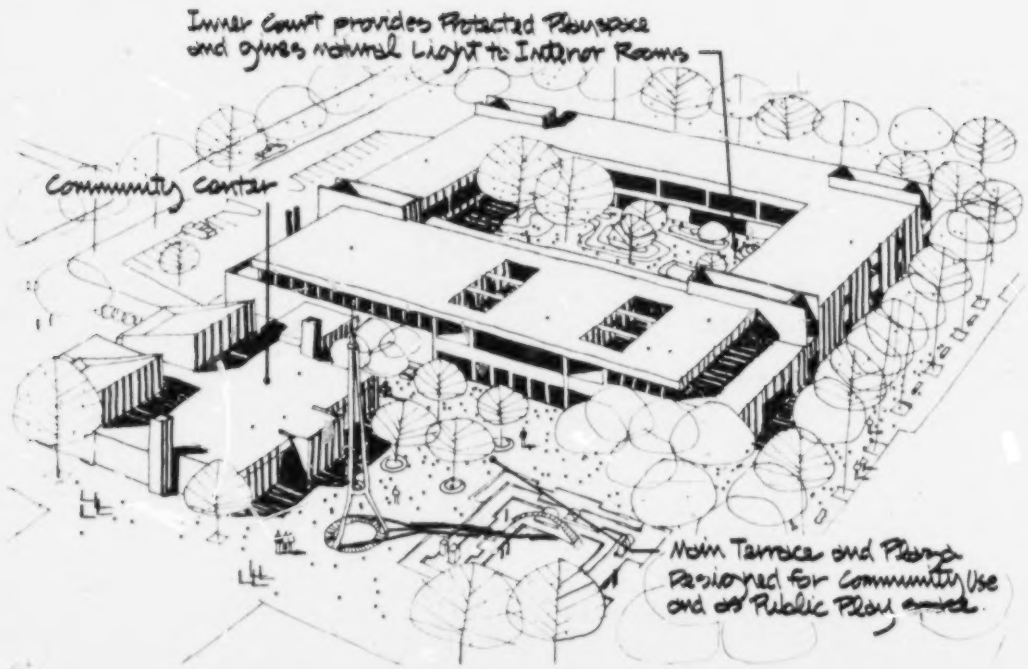
The Giddings School, for example, is situated on 2.5 acres bordering the Hough District, in the Center of Cleveland. It is a compact, three-story building with its major elements surrounding a 30 per cent skylit, all-weather, inner court. Terraced balconies provide a visual extension of the individual classrooms as well as serving as a secondary means of egress. The library and the administrative area are centrally located.

The architect says that "the enclosed court, which is the focus of the school, will be landscaped and have street furniture to facilitate both the environmental and functional aspects of the space."

Facilities for important programs can often be placed in an interior court. The Timothy Dwight School in New Haven and the Manchester School in Pittsburgh make use of their interior courts in this way. The Timothy Dwight school's court was designed and developed specifically to serve environmental education programs and outdoor teaching situations. Obviously, it is easier to protect and maintain site development in an interior court than on the usual unprotected school site.

Giddings Elementary School
Cleveland, Ohio




Inner Court provides Protected Playspace
and gives natural Light to Interior Rooms
Community Center
Main Terrace and Plaza
Designed for Community Use
and as Public Plaza

Dike Elementary School
Cleveland, Ohio

Cleveland's Dike Elementary School is built within the Dike Park Housing Complex. According to the architectural firm which designed the school and part of the housing project:

"The school was to provide 14 early-elementary classrooms, 2 kindergarten rooms, 12 later-elementary classrooms, 1 team-teaching area, a library, gym-multi-purpose room, clinic, kitchen, administrative offices, maintenance facilities, protected play space, and to have a minimum of glass areas in the outer walls. The 1.95 acre site was very restricted for a school of this size. The problem was solved by making the classroom section 2 floors high, arranged around a 90' x 150' open court which allows each room to have natural light and also provides a large protected play space which could be easily supervised from all parts of the building. The building covers 60 percent of the site, and is set apart from the surrounding houses because the entire complex was designed as one entity. Twenty-five parking spaces were provided."

The school is innovative, not only because of its interior court, but because of the interrelationship of the housing project and the three agencies that developed it. The Cleveland Board of Education, the Cleveland Metropolitan Housing Authority and the Cleveland Recreation Department hope to tie housing units, recreational and educational facilities together in the community and make them easily accessible to one another. Housing for the elderly was also to be included in the design.

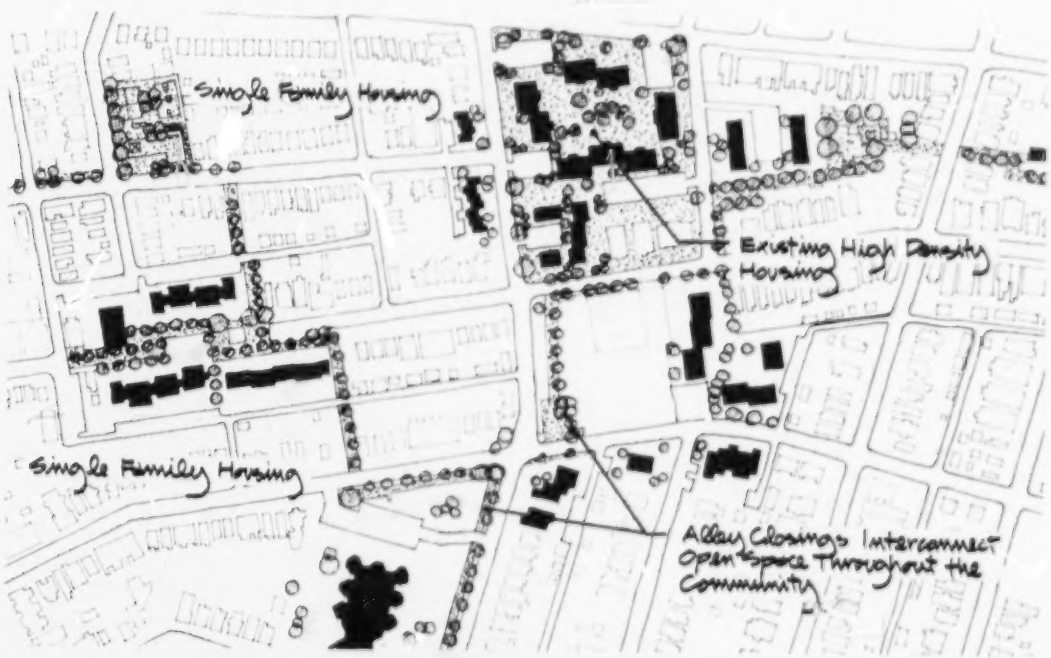
A community center and plaza is planned immediately adjacent to the school. It is hoped that the school and community center facilities will complement each other. Planners expect that the plaza immediately in front of the school will serve as a focus for community activities, and they intend to develop a playground in conjunction with the community center.

The I. S. 195 school in New York City is being developed in conjunction with a high-rise housing project. The three-story school forms the center focus of the complex, with the high-rise buildings the periphery. In this case, the courtyard can also serve as a main entrance to the school, since tall doors open from the street directly into the center space.

E. STREET AND ALLEY CLOSINGS

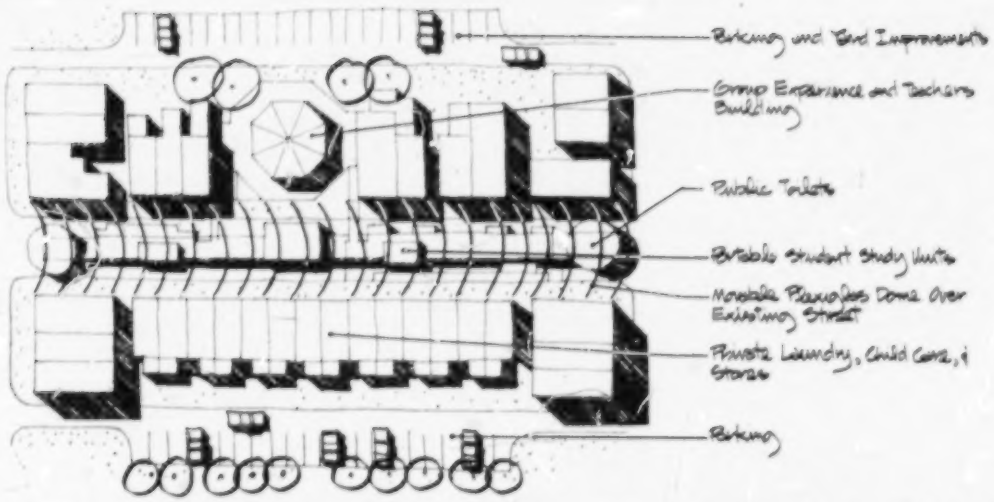
All too often, a school finds that its existing site, even after it has been creatively renovated, is still in need of additional space. Streets may be the only areas of open space available around an urban school. In some cases, as when the need for added exterior educational space becomes urgent, surrounding streets or alleys may be closed to provide additional land. Occasionally, little-used alleys behind row houses may be converted, if not for actual school site use, at least into walkways for better access onto the site itself.

Pittsburgh's Manchester School is located in a relatively low-density area, but little additional space was available without removing existing homes. Because the area traffic pattern was not vital to the neighborhood or the city in general, the street behind the school was closed and the site united with a newly-developed square block of park area. Streets on either side of the park were also closed, producing a recreational block surrounded by closed streets.


Single Family Housing
Existing High Density Housing
Single Family Housing
Alley Closings Interconnect Open Space Throughout the Community

Manchester School
Pittsburgh, Pennsylvania

Kelley School
Pittsburgh, Pennsylvania


Parking and Yard Improvements
Group Experience and Teachers Building
Public Toilets
Portable Student Study Units
Movable Plexiglas Dome Over Existing Streets
Private Laundry, Child Care, & Stores
Parking

Mantua School
Philadelphia, Pennsylvania

Philadelphia is considering an ingenious concept for more space. With the residents' permission, it is proposed that several streets in the Mantua district be closed and covered with an all-weather plexiglas dome which is supported on precast concrete columns attached to renovated house facades, with alleys and vacant lots being used for service access and parking. Portable classroom units, together with teaching machines and equipment for students, will then be installed. A key item for each block would be a 3,000 sq. ft. conventional building to house offices, conference facilities and an auditorium.

In another example of how adjacent street space has been used to help solve space needs, the principal of Philadelphia's Gratz High School felt that if he had more bleachers, he could send more students to college. In other words, he felt that an expansion of the recreational and physical education facilities in his school might lower its dropout rate.

Subsequently, a landscape architectural firm prepared an analysis and inventory of existing and planned recreational facilities in the area. Studies were then made of the facilities desired by Gratz High School, Gillespie Junior High School (immediately adjacent to Gratz), the local Boys' Club, the community and others, and priorities were developed, i.e., short-range (1½ years), medium range (3 years), long-range (6 years).

The result was that street closures and the coupling of surrounding land parcels enlarged the school's site to about ten acres, and allowed development of a comprehensive recreation plan.

The proposal for the renovation of the site of the existing Kingsman School of Washington, D. C. was made as part of Mrs. Lyndon B. Johnson's work with the Citizen's Committee for a More Beautiful Nation's Capitol. The corner school space was extremely small and consisted mainly of a setback around the building. In coping with the problem, the land-

Kingsman School
Washington, D. C.

scape architects designed a playwall which required the redevelopment of the surrounding slopes into play facilities and outdoor seating areas for community residents. The plans for stepping up the slopes and redeveloping the rundown school have not yet been implemented; nevertheless, this is an excellent example of how space that is often overlooked can be put to good use if creatively planned.

Another piece of open space overlooked in urban areas is located within the right-of-way area of overhead expressways and highway interchanges. The State of Louisiana and the City of Baton Rouge, for example, are currently planning the utilization of this type of space under the interchange of Routes I-10 and I-110 in that city. Also backed by the Kiwanis Club, plans are being drawn to include such facilities as a softball field, all-purpose play courts, picnic areas, restroom, and a spray pool.

F. USE OF MARGINAL SITES

When it seems impossible to find other city land for desirable school site components, another possible choice is to use marginal sites, such as extremely steep hills. Such sites can be much more striking than the usual school site and also provide surprisingly successful results.

Pittsburgh's Columbus School takes advantage of a very steep site and places its facilities on a number of hillside levels. The design requires a multi-story building and extensive use of roof-tops, retaining walls and paved slopes. The school is located in a blighted area of the city between multiple-family housing and a commercial area, and a few houses had to be removed to make way for it. The site slopes so steeply that one enters the six-story school building by second-floor ramp on one side, and at the fifth floor on the other side. The street behind the school rises sharply, and the site seems unsuited for any other purpose. It was difficult to make the building accessible to the neighborhood, but the circulation pattern was carefully planned and functions well. In so doing, the site offers several solutions to the urban dilemma.

Columbus School
Pittsburgh, Pennsylvania

Columbus School
Pittsburgh, Pennsylvania

First, there is an integrated parking, play and service area. Faculty and staff parking space is located on the lower side of the site; basketball backstops are spotted on the periphery of this same area, making it available as an abbreviated basketball court when automobiles are not parked in the lot. One end of the parking lot also serves as the building's storage area. The result is that one site-zone serves as a parking lot during the day, as a basketball practice court in the evening, and as part of the service area of the building itself.

A large play area, terraced above the adjacent street, lies slightly below the site's first floor level. This play area is open dirt that is not attractive, but functions adequately. There is, in fact, no grass on any part of the site. Artificial turf has been used effectively on the roofs of a classroom and a gymnasium which are fenced and accessible directly from adjacent classrooms. The spaces are used for recesses and outdoor play during lunch hours. The use of the roof constitutes a clear recognition of the need for compaction on the urban school site.

The steep site necessitated a great deal of exterior terracing. Granite sets have been laid into the slopes to prevent erosion, and flat areas paved with asphalt, since planting is impractical. Retaining walls serve as attractive vertical playwalls.

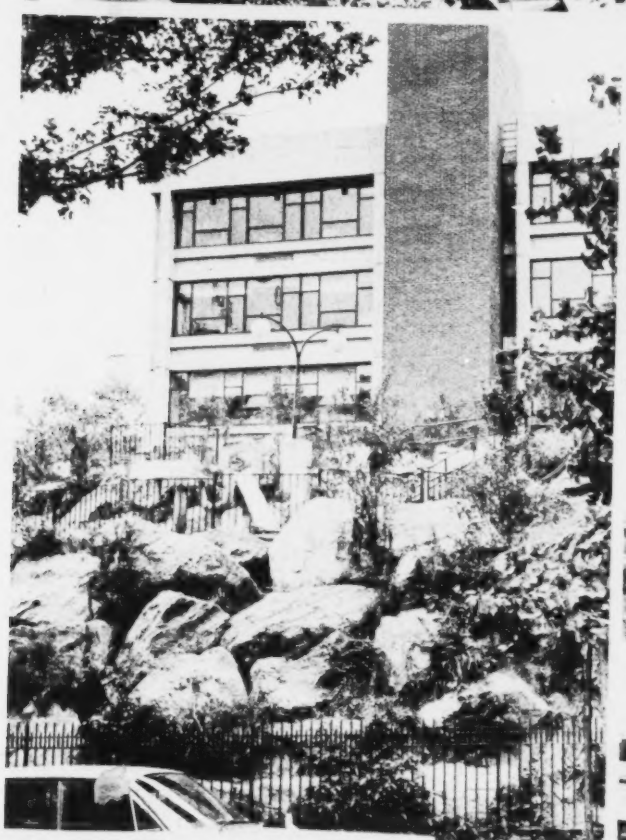
The height of the school allows the structure to be concentrated on a small part of the site, leaving the rest for parking, recreation and physical education.

Three distinct play levels help to separate students into age groups: two outdoor play areas located on the uphill side; the two roofs; and a playfield on the downhill side of the building.

As another example, the Morningside Elementary School is built on a 200′ x 300′ rock-laced site located in Manhattan's upper west side. The site is bounded by a park and three streets, and drops forty feet in height from end to end.

The building is designed to accommodate twelve hundred kindergarten-through-second-grade pupils grouped in "subschools" of four hundred. Each subschool contains twelve classrooms, a lunchroom, playroom, and an assistant principal's office. Main administrative offices, guidance offices, libraries, a kitchen and other common facilities serve all three subschools.

Morningside School
New York City



The steep, rocky site prompted a decentralized design in which three buildings are grouped around a central administrative center. Bridges connect each classroom unit to the center unit, and each three-story building is largely self-sufficient.

All building service enters through the basement, which is cleverly masked by an entrance bridge. This is, perhaps, one of the best solutions to the service-area problem of any urban school site in the country.

The architect and the landscape architect fully recognized the advantages of the site. Consequently, they did not destroy it or pave it over, but integrated their school and its exterior facilities into the various parts of the natural site. The granite found in the park has been used to build retaining walls around the building, thus unifying structure, site and site material. The natural boulders were allowed to protrude, play equipment was integrated with them, and plantings placed amongst them.

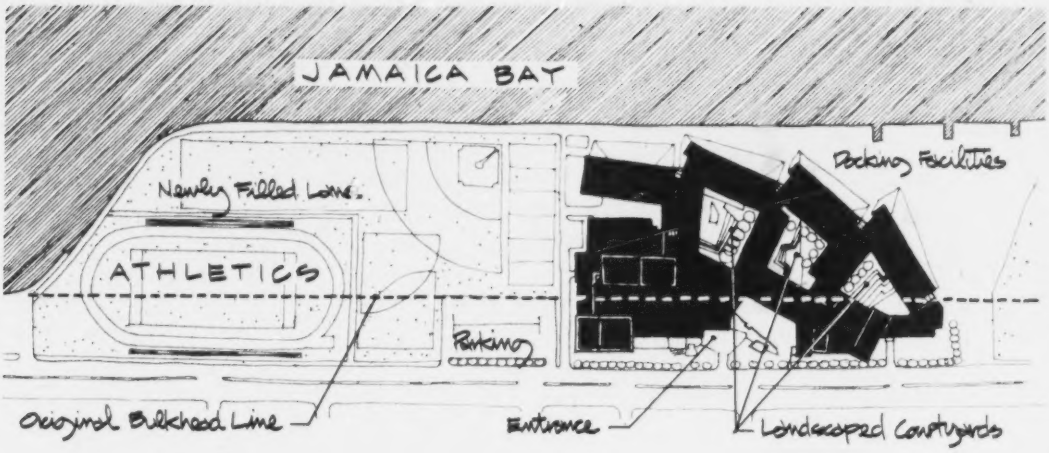
Despite severe budget limitations on site development, Morningside has three playgrounds. The landscape architects felt it appropriate to avoid the usual single urban schoolyard in favor of three separate areas, each individually planned. They used the building as a buffer between various playgrounds, and let extreme level-changes isolate some areas more than others. One playground is dominated by a complex amphitheater arrangement, another by climbing mounds, and a third by an interplay of levels and connecting slides.

Planting on the site also recognizes the urban character of its surroundings. Some planting is placed among existing boulders; some is raised in planting beds to protect it from vandals and normal traffic. Still other planting, closer to the school, was set between retaining walls and fences, exposing the naturalness of the plant while protecting it from normal wear and tear. Planting is placed outside the fencing on the pedestrian bridge-crossing.

As on the Buchanan School site in Washington, three large pieces of sculpture by Artist William Tarr are placed around the school. The dramatic scale and intricacy of the steel sculpture adds esthetically to the site and seems to be appreciated by both students and residents of the neighborhood.

There is no chain-link fencing on the site. An interesting steel bar fencing material which stops traffic and adds to the appearance of the site, replaces it. Since the site has no turf, relatively little maintenance is required. The natural character of the planting and the raised beds also reduce the necessity for careful maintenance and help lower its cost to a level comparable to that of the usual inner-city asphalt-and-chain-link-fence wasteland.

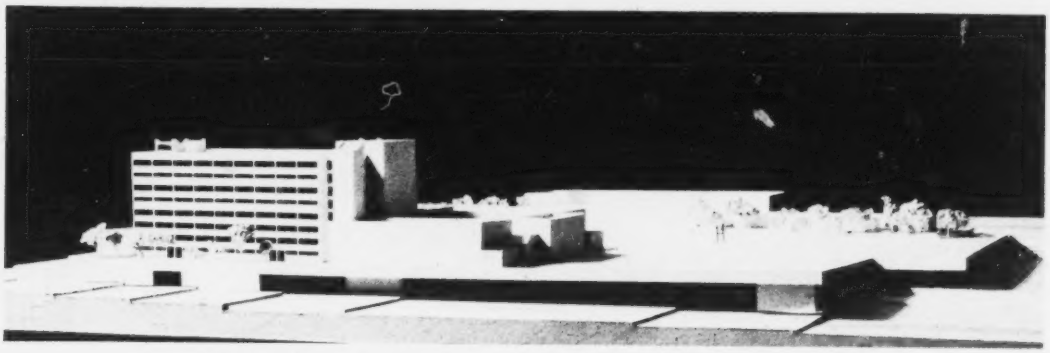
In some instances, marginal sites exist where they are not entirely apparent. Such is the case of New York City's Beach Channel High School. The fourteen-acre site for this community-oriented school complex was constructed in space beyond the bulkhead line into Jamaica Bay. It was made from land fill within a rock dike and projects four hundred feet into the bay. This newly constructed site now provides space for the complete complex of building, parking, athletics, and a number of community-oriented facilities. Examples of these are docking facilities for excursion boats on Jamaica Bay, a fishing pier, and a wide landscaped mall which will provide access to a near-by amusement center. This unique site is also recognized, in an environmental education way, through its provision of an oceanography department in the school's program and a marine display area. The building is arranged to form three exterior courtyards. Two of the landscaped courts surround the library, and the third contains an amphitheater capable of seating six hundred people. When not used for educational purposes, this amphitheater is intended to be used by the community.

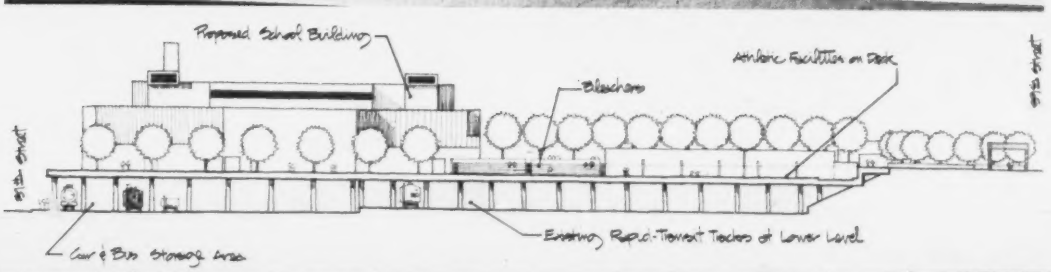


Beach Channel High School
New York City

An additional concept using what might be "marginal" sites is that of air-rights. This simply refers to the using of the rights to the air above a piece of land, in essence, creating a platform above an existing land use. North Kings High School in Brooklyn, New York is a good example of this approach. Here, an eleven-acre platform is planned over the New York Transit Authority (mass transit) tracks and the terminal facility for the city busses. The use of the deck facilities must be planned for extreme efficiency due to the obvious costs. In this case, the building utilizes a high-rise approach as much as possible, and the remainder of the deck contains a maximum of overlapping multi-purpose play facilities. The slope of the existing land has provided some functional benefits here. At the upper end, it allows emergency traffic to drive directly onto the platform surface and pedestrian traffic from the community is heaviest from this direction as well. In addition, the busses below require less headroom clearance and are lower than the mass transit tracks. This has allowed the platform to be "stepped," thus gaining visual interest and providing a natural separation of play facilities. The present fate of North Kings School is somewhat unsure. The School Board has recently been reexamining its planning programs, changing possibly to schools of two thousand students rather than the four thousand students which this school is meant to accommodate.

North Kings High School
New York City





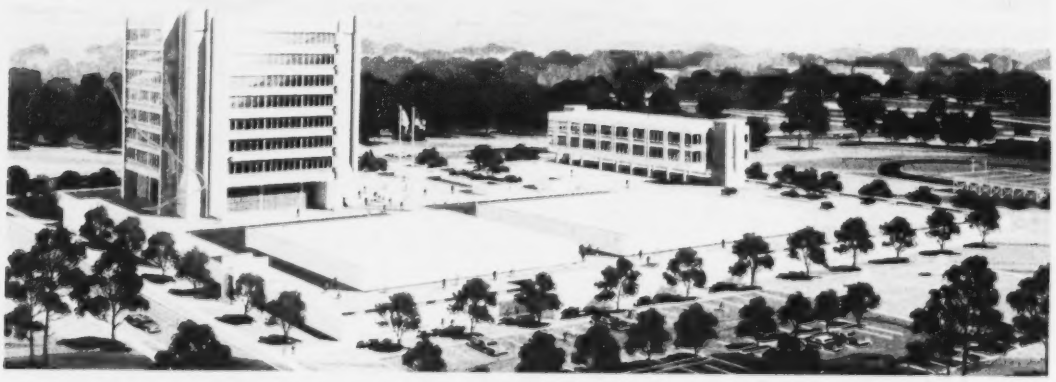
G. HIGH-RISE SCHOOLS

Similar to other types of development, the high-rise school is a response to the need for maximum facilities within an area in which a minimum of available land exists.

Chicago's Jones Commercial High School occupies a 1.2 acre site and consists of three units grouped around a courtyard. The larger units contain an academic tower, physical education, auditorium, music and cafeteria facilities. Some parking is provided on the site for visitors and staff.

The academic tower is six stories high and is designed to serve as a base for an eighteen-story office tower whose occupants would provide employment for the students.

Another high-rise school, the Granville Woodson High School in Washington, is planned for a site which would accommodate school buildings, a football field, running tracks, a two-thousand seat stadium, tennis courts, staff parking for one hundred twenty cars, and a paved play area that can provide supplementary parking space. Among the problems which dictated a high-rise concept was a requirement that underground utilities remain untouched and accessible and an overhead power line cutting diagonally across the property could be rerouted but not placed underground.



Granville Woodson High School
Washington, D. C.

The resulting solution is a nine-story high-rise academic tower on a one-story podium containing a gymnasium and auditorium.

In another example, the North Kings High School in Brooklyn, New York, mentioned earlier, is also being planned as a high-rise school. Its eight-story classroom wing is necessitated by the need for extreme efficiency in using its eleven-acre air-rights platform site.

The Downtown Commercial High School in Manhattan has also responded to minimum available land space. This eight-story school is unique, however, due to its curriculum. As a commercial high school, its students are regularly employed during school hours by surrounding offices and businesses. There is a corresponding decrease in athletic facilities and hence, less requirement for site space. Of particular interest is the triangular shape of the school, due to the adjacent streets.

H. USE OF ROOF-TOPS IN CITY SCHOOLS

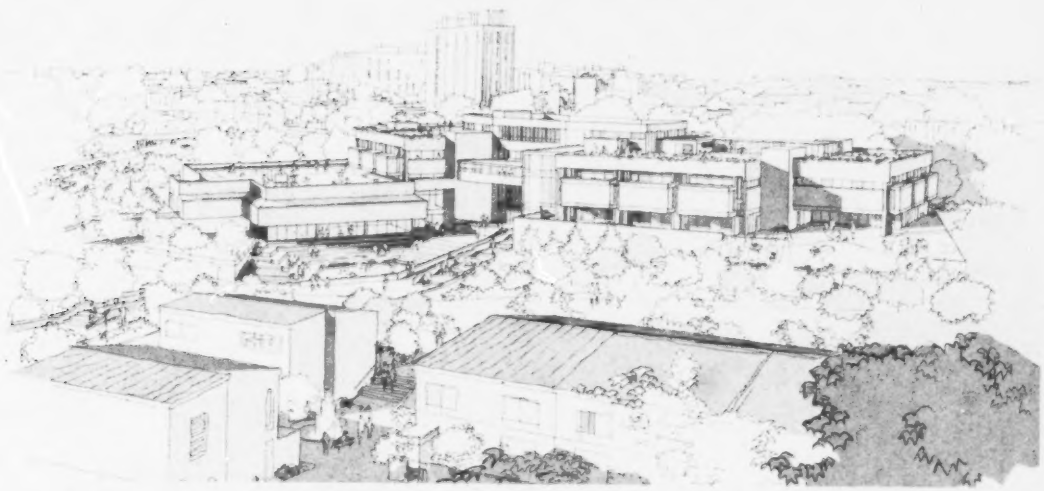
Urban pressures for land use require the greatest efficiency in using all horizontal surfaces, be they at grade or well above. Not uncommon is the use of roof-tops for play facilities

or general exterior education in urban schools. With the present developments in thin-bed resilient surfaces and artificial turf, these areas are even more responsive to a wide variety of play and education functions.

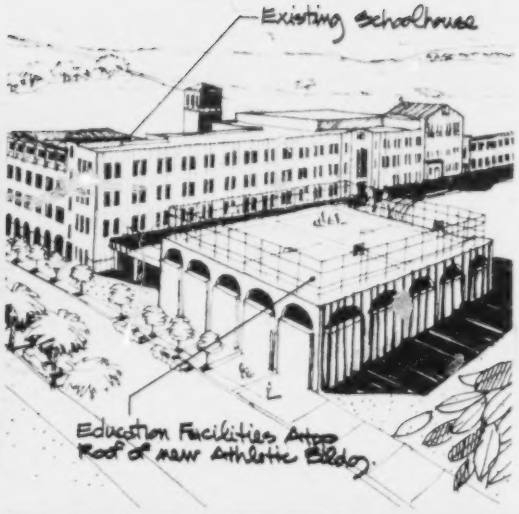
Fort Lincoln is a proposed new town for 16,000 people, which will be situated on a rolling 335-acre tract of surplus federal land on the northeast edge of Washington. The proposed Fort Lincoln Elementary School, No. 1, will use roof-tops innovatively for site facilities and should provide guidelines for the use of inner-city sites elsewhere. According to the architects, "approximately 110,000 sq. ft. of interior space has been placed on four acres of land with a 13% grade sloping downhill from the town center. The restricted site necessitated the extensive use of roof areas (85%) for recreational and outdoor instructional use." The stepped roof elevations conveniently separate the children by age groups so that all can be out at the same time without interference.

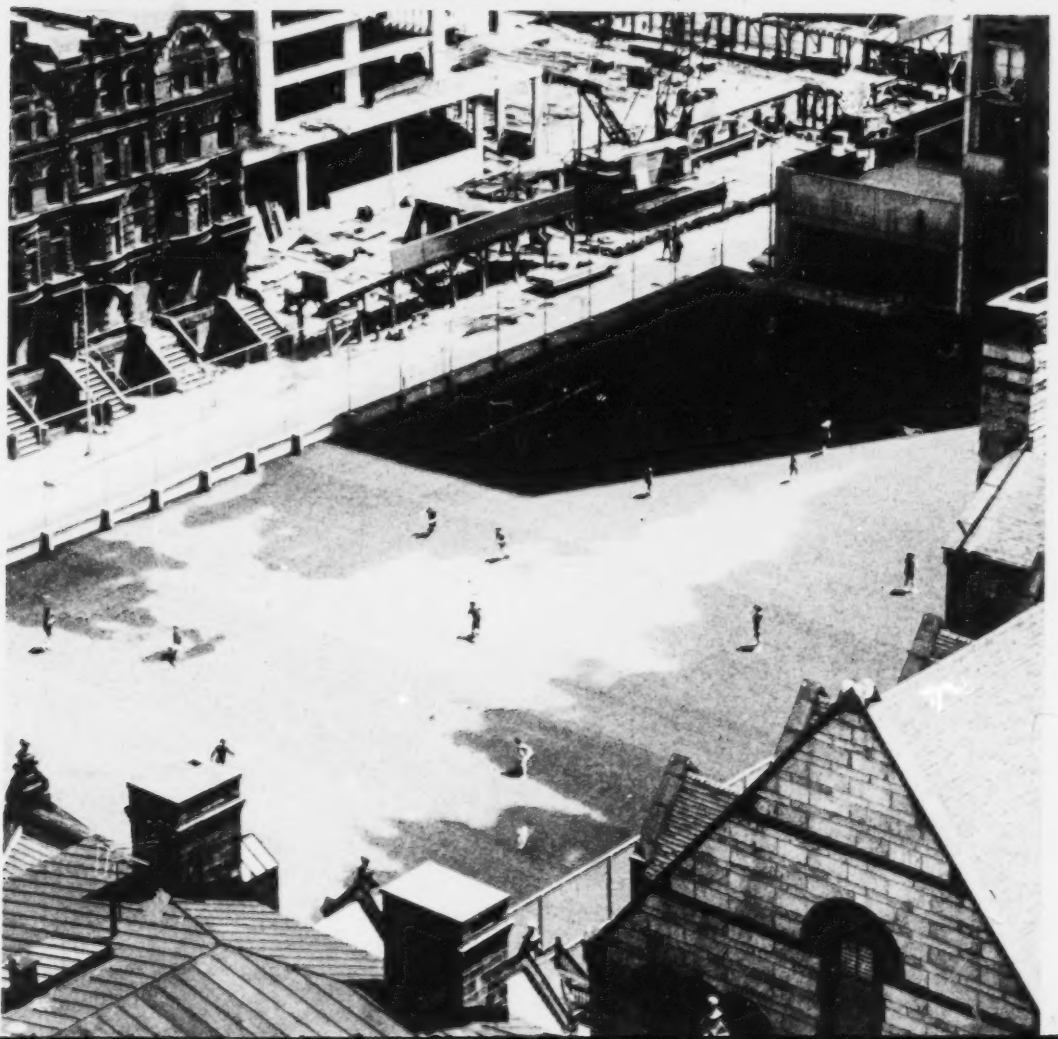
Another roof-top development resulted from cooperation between the Boston Public School Board and the Boston Public Facilities Department. The Public Facilities Department commissioned an architect to design a school building with roof-top facilities. Two large sections of a proposed school roof were designated as outdoor play areas. A variety of levels on the roof-top would make it possible to segregate various age and interest groups. Later, budgetary considerations forced planners to abandon the idea of using the roof for these purposes.

Fort Lincoln Elementary School
Washington, D. C.



An interesting use of roof-tops for school-site facilities occurs in the new suburban town of Reston, Virginia. Lake Anne kindergarten uses the roof of the local supermarket. The school building is located directly over the store's service area. A "stockade-type" picket fence surrounds the market roof and raised pyramid planters, sandboxes, a pergola and outdoor play apparatus are arranged on the roof. The design completely integrates the nursery with the commercial building below and demonstrates the degree of design quality that is possible on a roof-top.

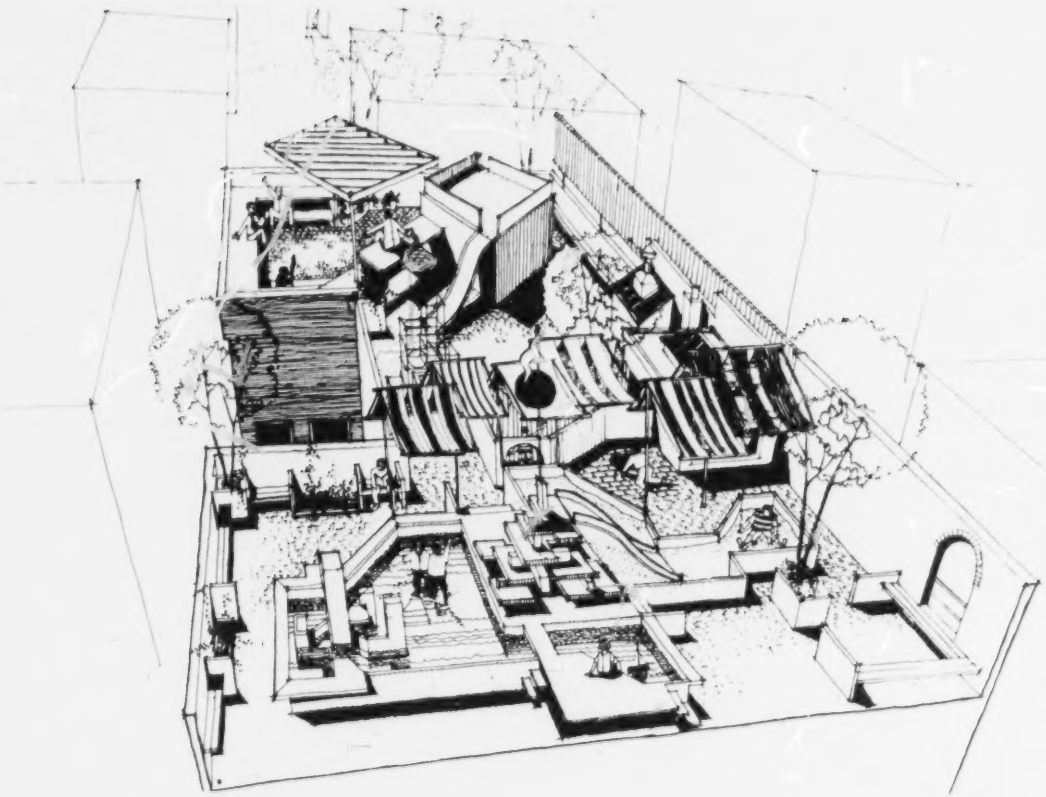




Left: Lake Anne School
Reston, Virginia

Rt: Mission High School
San Francisco, California

Trinity School
New York City



Little Red Schoolhouse
New York City

As a part of the modification and redesign of the Mission High School in San Francisco, the architects designated the roof of the new boys' gymnasium for outdoor physical education facilities. This roof is to be developed for multi-purpose play facilities, court games, and basketball.

The Little Red Schoolhouse, Inc., in Manhattan's Greenwich Village, is an example of one of the better roof-top playground projects. The existing roof of the five-story elementary school contains all of the stairwell, ventilating and light-well units common to the typical New York City roof-top. Working closely with the program of needed facilities, the architectural firm proposed the development of the area to provide a variety of creative play experiences for four-to-six-year-old children.

In reclaiming the roof-top space, the designers proposed the creation of an environment with sun and shade, water and sand, a variety of play surfaces and equipment, and even areas for self-expression; in short, all of the fundamental qualities of a well-equipped suburban schoolyard.

P.S. 165 in Manhattan is part of a joint-occupancy complex planned to provide a school, housing, and new commercial space. The existing school, paved playground and its adjoining tenements were used to locate the major buildings. The entire first floor level of the existing "H" shaped school is to be enclosed with new rooms. Then, with the second-level crossbar of the "H" opened, a continuous plane will be provided for the relocation of the playground facilities on the roof of the new construction. P.S. 165 is a good example of the using of existing school structures in combination with new construction, as proposed by the "New Life for Old Schools" program of the Great Cities Program for School Improvement.

I. LOFT OR WAREHOUSE RENOVATION

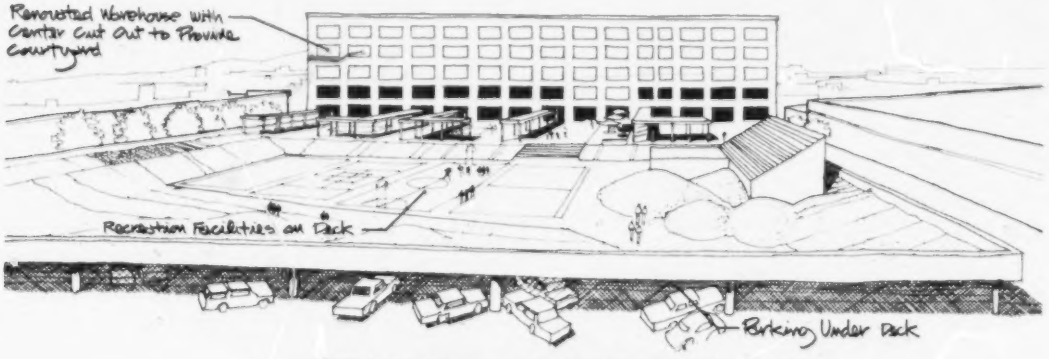
Most cities contain an abundance of unused warehouses and vacant buildings that could easily be converted for use as school buildings. Cleveland is trying this type of redevelopment, and the Far West Laboratory for Educational Research and Development intends to locate its educational development center in part of a remodeled urban warehouse in San Francisco.

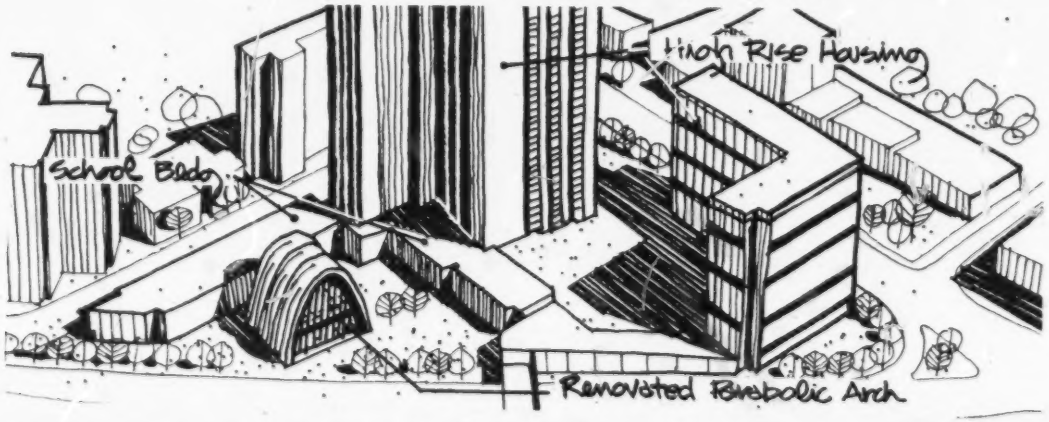
The San Francisco Unified School District is interested in using the leftover portion of the warehouse, and the laboratory planners propose cutting out the center of the building to let in light and air. The court is planned to serve as an interior site and contain some of the components necessary for the urban school.

Furthermore, the San Francisco district administrators propose that a deck be built over an adjacent parking area, and that it, too, be used for education and recreation facilities.

As part of the New York City Educational Construction Fund, the P.S. 141 School is being proposed as part of a comprehensive housing project. The site includes an old asphalt plant which is unique in that it is an architectural landmark. The old structure to be preserved is in the shape of a parabolic arch and was an architectural innovation at the time of its construction. The three-story arch will be included into the school's floor plan and is intended to house the complete gymnasium and assembly facilities.

As can be seen by the preceding examples, therefore, the city school site must be constantly analyzed for greater efficiency techniques if it is to provide the greatest number of facilities within its limited confines.





San Francisco Unified School District
P.S. 141 - New York City

IV. DEVELOPING COMMUNITY RELATIONSHIPS

The urban school site, more than any other area, should be the focus of community activity and development. Theodore Osmundson, former President of the American Society of Landscape Architects, puts it this way:

> "There is no practical reason that schools cannot be located in park-like settings which may be reserved for the children during the school hours and function as community parks in the evening and on weekends for all. Schoolgrounds are all too often the only significant open space in residential areas and for these spaces to remain blighted rather than beautiful is inexcusable."

An increasing number of states, cities and even individual schools are exploring innovative methods of opening the school site to the community.

The California Board of Education, for example, has developed master plans for joint school-community use of recreational facilities and amenities that encourage community use

of school sites. The Board has also suggested guidelines that would produce standards for school-community recreation and physical education facilities, establish jurisdictions for school-site use, and establish funding for the construction and maintenance of recreation facilities that generally improve school sites.

In general, there are three ways to encourage community use of urban school site facilities:

1. The community can use site facilities during non-school hours. The local department of recreation might sponsor these.
2. Facilities could be developed especially for community use; a special school recreation annex could be built on the school grounds. Such a special wing could be opened after school and on weekends, and might also provide storage space for outdoor recreation equipment.
3. The community can assist in planning and developing the site itself. This participation is possible on several levels, beginning with the first stages of creation and extending through actual construction, but community participation and interest are indispensable in the planning of an adequate and attractive site facility.

A. SCHOOL/PARK RELATIONSHIPS

Long Beach, California, although not a densely populated urban area, has developed a plan that combines municipal and school recreational programs and facilities under one commission coordinated by the city's director of recreation.

Los Angeles attempts to make school facilities available to the entire community under a "Youth Services Program" administered by the Los Angeles City Schools' Division of Instructional Services. The basic premise is to coordinate the use of school facilities in order to increase the kind of recreational service, improve their quality and to avoid duplication of buildings and land.

In Flint, Michigan, the city's Board of Education, the Mott Foundation and the Industrial-Mutual Association cooperate extensively to provide community recreational facilities. The Mott Foundation, a privately endowed group sponsoring recreational and adult educational programs in the city, maintains a community school director at each of Flint's fifty-two schools. The Industrial-Mutual Association helps to arrange recreational facilities for workers in Flint's industrial complex. The I.M.A. employs a recreational staff and has developed activity programming by interchanging its community activities with Flint's recreational facilities group. The city has a Recreation Commission composed of representatives from the City Commission, the Board of Education, the Mott Foundation, the Recreation and Park Board, and the I.M.A.

Flint has also pioneered in the school-park program which develops school and park facilities on adjacent pieces of property without concern for administrative property lines. Clearly, the process involves pooling of Park Department and Board of Education efforts in an attempt to develop a combined facility. Through this program, school sites are acquired adjacent to existing parkland to use either existing or proposed recreational facilities. To develop these sites a school-park site committee was formed. This committee consists of three representatives each from the Recreation and Park Board and the Board of Education. The committee works with a landscape architect employed by the Board of Education and the Mott Program, and housed with the planning staff of the Recreation and Park Board. The committee and the landscape architect in turn work with the members of the community councils of the neighborhood schools in the designated areas to plan each particular site.

The scale and division of funding levels for two of these school-parks indicate the ways in which the interested groups work together. On the Hasselbring Park-Gundny School Site development was funded by $88,000. from the Flint Recreation and Park Board, $11,700. from the Flint Board of Education, and $22,100. from the Gundny Elementary School Community Council which called its campaign "PRIDE" (Park Recreation Instills Development Endeavors). The site provides tennis courts, handball and tennis practice areas, picnic area, ice skating rink, multiple play area, baseball diamond, elementary playground shelter and parking.

The Oak Knoll Park-Jefferson School Site was financed by contributions of $144,735. from the Flint Recreation and Park Board, $41,748. from the Flint Board of Education, and $12,876 from the Jefferson Elementary School groups. As a result, the community has lighted areas for field games, an outdoor classroom, picnic area, winter sledding area, picnic pavilion, shuffleboard and tennis courts, a wet weather area, park headquarters and parking lots.

Milwaukee has also been a leader in school-community inter-relationships. The city's Common Council and Board of School Directors cooperate in providing facilities for public outdoor recreation programs. School Board policy dictates that new elementary school sites contain sufficient area to include neighborhood playgrounds. When the Board wants to enlarge existing school playgrounds or create separate playfields, the Council purchases the land and appropriates funds for developing play areas, then turns the completed facilities over to the School Board for maintenance and operation by the municipal recreation division.

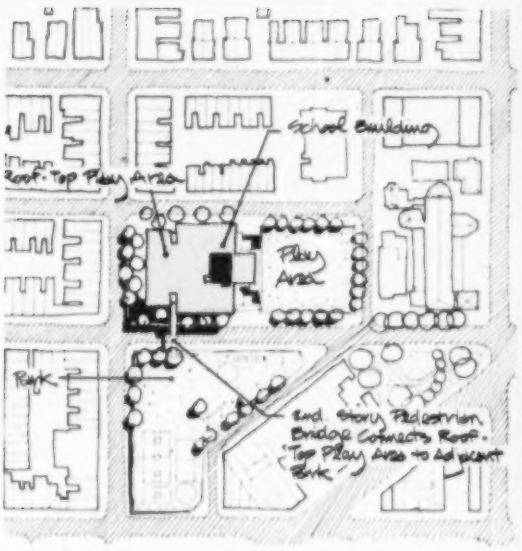
Milwaukee's policy of constructing play areas adjacent to elementary schools offers the advantage of considering such factors as population density, travel distances, heavy street traffic and other hazardous situations in conjunction with all site selections. Furthermore, the city realizes substantial savings in capital outlay and maintenance costs from the area's maximum use.

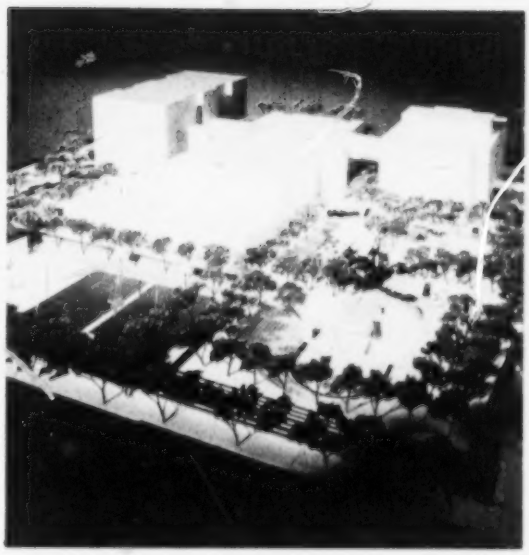
Perhaps one of the most direct ways of involving the community is to absolutely avoid the fenced-in "prison-like" appearance of all too many urban schools. The psychological appearance of the school strongly influences the image it presents in the community.

The City of Baltimore's Bureau of Recreation operates two kinds of school facilities. Together, they constitute an outstanding program for additional school site development. The first is a recreation center, which uses schools after hours. The Bureau and the schools cooperatively use nearby playfields. A second kind of facility involves a special recreation wing annexed to an existing school building, or, if possible, included in the construction of new schools. Such wings are attached to the school in a manner that allows joint use of the school gymnasium and also enables schools to use Bureau of Recreation parkland adjacent to the building.

The Commodore John Rodgers Relief School No. 27, in Baltimore, was developed through the joint efforts of the Departments of Education, Planning and Parks and Recreation. This was the first time the three agencies had cooperated in procuring land and developing their facilities.

The initial designs for the Hartranft School in Philadelphia called for a unique school-park relationship. A second-story pedestrian bridge connected a school roof-top play area to a park across the street. In this way, the tight site was expanded upward and outward. Unfortunately, the final design priorities prevented the application of this design concept; nevertheless, it can still be used at some time, hopefully in the near future.

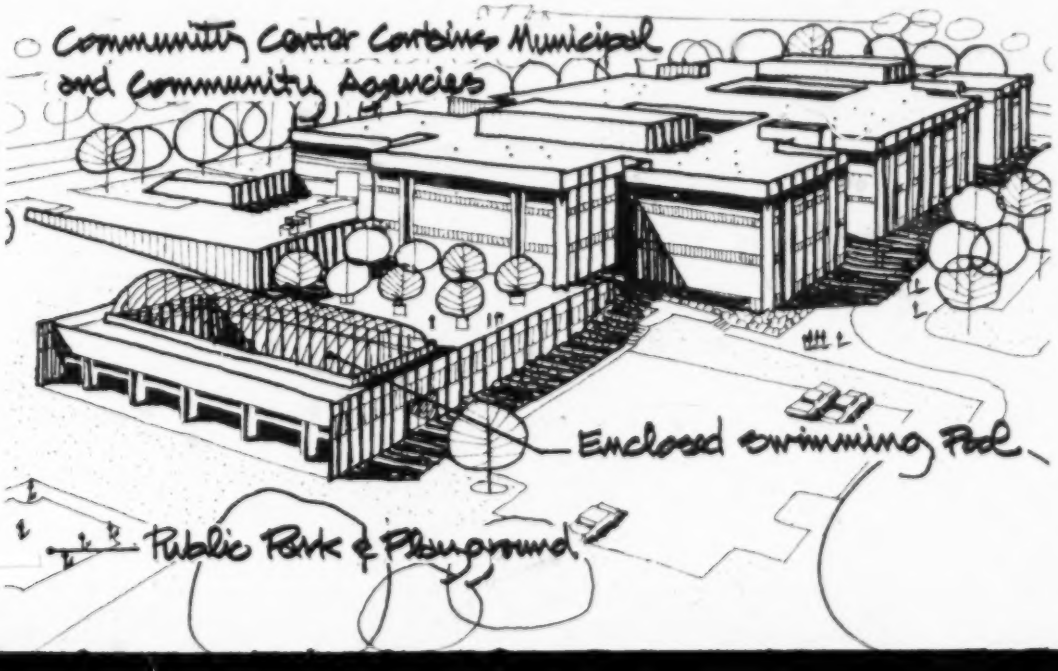




Left: Hartranft School
Philadelphia, Pennsylvania

Rt: Commodore John Rogers School
Philadelphia, Pennsylvania

Atlanta's John F. Kennedy School and Community Center is an example of many community departments and agencies coming together for common benefit. Included in the funding for this facility are such groups as the Parks Department, the Senior Citizens Services, the Department of Family and Children's Services, the Housing Code Division, the Office of Economic Opportunity, the State Department of Education, the Atlanta Public Schools, and others. The facility includes a middle school, recreation facilities, and eleven community agencies. Since its opening in 1971, the school has shared these facilities with the community on a slightly limited basis during school hours and on a completely open basis after 3 p.m. Located in the Nash-Washington Community of Atlanta, a typically marginal inner-city neighborhood, this facility contains nearly every type of community group and agency under one roof.



Kennedy School
Atlanta, Georgia

B. GAINING ADDITIONAL LAND

Often, the search for vacant land in the center city produces no usable results, and the only alternative seems to be to displace existing homes and commercial establishments in the surrounding community. The act may cause such social and cultural traumas that it appears to be almost prohibitive. However, with some creative reanalysis, the problem can be circumvented and a stronger community relationship can be established as well. West Philadelphia's Mantua Middle School Project offers such an alternative by proposing fragmentation of the school components and functions, and the use and renovation of existing townhouses to disperse the various parts throughout the community.

The Mantua Project was created because citizens were dissatisfied with the design of a proposed middle school for sixteen hundred students (grades 5-8), and with its proposed site. The site would have required a residential area to be razed. After that proposal was rejected, the Philadelphia Board of Education commissioned the Mantua Community Planners and the Young Great Society Planners to prepare extensive follow-up plans for a series of mini-schools in West Philadelphia. The planners suggested mini-school site selection criteria calling for:

1. Minimum displacement of occupied residential or livable non-residential buildings.
2. Proximity to public transportation and to other neighborhood facilities.
3. Minimum acreage of .20 acres per school.
4. Geographic relationship to the proposed "feeder area."
5. Compatibility with adjacent land uses.

The rationale for the mini-schools was that the typical Philadelphia middle school site required 7.5 acres; 5.5 for open space, 1.4 for the building, and .6 for parking.

According to the planning report:

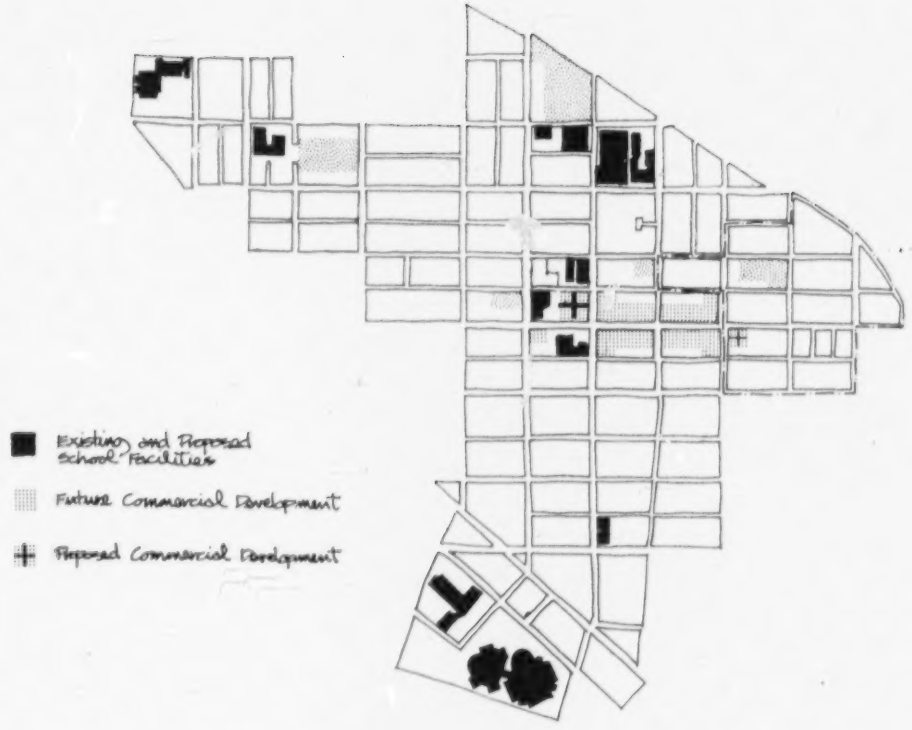
"At present densities of 30 dwelling units per acre in Mantua, the acquisition of 7.50 acres of land would require displacement of approximately 250 structures or 1,000 families, or possibly 3,500 to 4,000 people. This obviously is an unworkable relocation load, especially at this time when there are statistically no decent low and moderate income relocation housing available."

The value of the Mantua plan lies in its use of smaller open areas for leisure and passive play; existing playfields serving temporarily as recreation space for middle school students; additional playfields which may become available; and busing to athletic fields, between scattered site facilities, and to other schools operating joint programs with the Middle School.

The Mantua Project offers at least four ways of solving the school-site space problem:

1. If a large enough site is not available, it is possible to fragment components on small parcels of land. In the case of Mantua, at least in its early proposals, the parcels might have been renovated townhouse backyards.
2. If all of the desired facilities are not available, adjacent facilities can be shared.
3. Cleared land may be used for site facilities, and facilities integrated into the community without destroying buildings that occupy large areas.
4. Students can be bused from mini-schools, or from schools lacking extensive athletic facilities to those that have them.

It is often possible to use other methods to obtain city land in small parcels. Education departments may lease vacant buildings or land close to city schools for temporary use and development as vest-pocket school sites. Where no other area is available, empty lots could be redeveloped and derelict buildings removed to make space for outdoor educational programs.



Mantua Project
Philadelphia, Pennsylvania

In St. Louis, an architectural firm worked with local community leaders and the St. Louis Model City Agency to develop a series of vest-pocket parks in the Murphy-Blair section of the city. The designs turned out to have potential for expanding school-site space.

St. Louis Vestpocket Parks

St. Louis Vestpocket Parks

Vest-pocket sites add educational program space near the school and help integrate school and community. They destroy the "moats" created by chain-link fences, and may sometimes be leased for short terms in areas where redevelopment or new building is scheduled. A series of small land parcels provides natural activity separation and may easily be scaled for very young children, or for passive activities not usually characteristic of the large, open urban playground. Everyone in the community can easily use them during non-school hours because they are more accessible than a regular fenced playground.

A U.S. Housing and Urban Development research project studied the development and use of demountable play equipment in such vest-pocket sites. Recognizing that limited money prohibits individual design and specialized building techniques, the demonstration project used a systems approach that allowed manufacturers to become involved.

This resulted in four proposed systems of school recreational equipment. The first used 4" x 4" timbers staked into bridge forms, ramps and other climbing structures. Another used steel bars bolted together to form a structure that could be made into bridges, see-saws, and a hanging element for swings. Concrete modular bases of J-and U-shaped units were also proposed. These were to be fastened together to form small-scale settings for imaginative play. Another system involved pipe and cable units for climbing and balancing.

The advantage of such systems is that their components or units can be inexpensively manufactured, and since the units are non-representational, they are versatile and portable, thus affording greater flexibility in school educational programs. Conceivably, they might be arranged periodically in a vest-pocket park adjacent to a school, thus allowing site modification, as well as sustaining interest in it.

The encouragement of community residents on the school site through the inclusion of facilities for their use, particularly after school hours, has appreciably reduced vandalism in many instances. The most successful dual-use sites have separated age groups or activity types through vertical separation or dividing elements. Easily accessible storage for equipment in outdoor recreation activities should be provided at playgrounds

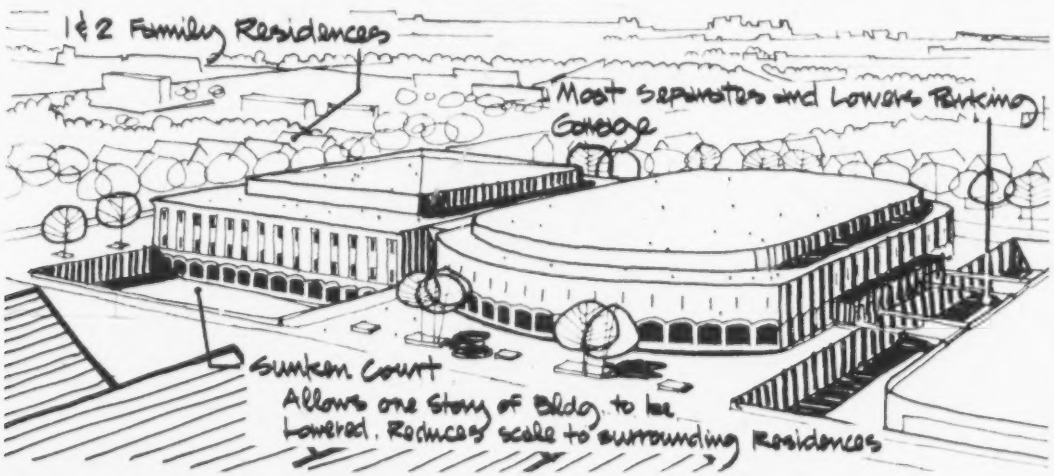
Vestpocket Park

C. THE "MOAT" SITE

Change in level affords an effective way of segregating activities on the urban school site. Such changes require retaining walls or a difference between the school's level and that of the area immediately surrounding it. A sunken school site could become a moat around all or part of the school structure, thereby eliminating the usual expanse of chain-link fencing.

Cleveland's West Side High School uses a moat. Its five-acre site is surrounded by one- and two-family residences, none of which are more than two stories high. A three-story school was needed to accommodate the desired facilities, so to maintain the existing neighborhood scale, the architects depressed the building one story below street level. Gardens have made this lowest level the most attractive of the entire building, which suggests that such devices could also be applied beneficially in urban areas. Such sunken courts are easily maintained, controlled and accessible to classrooms.

West Side High School
Cleveland, Ohio


1 & 2 Family Residences
Moat separates and Lowers Parking
Garage
Sunken Court
Allows one Story of Bldg. to be
Lowered. Reduces scale to surrounding Residences

D. USING COMMUNITY RENEWAL PROJECTS AND SHARED FACILITIES

Often, in order to achieve adequate urban site development, the school must share facilities with a variety of agencies, users, and constituencies. A functional and imaginative site design will integrate the school into the urban fabric by developing outdoor facilities in concert with organizations having similar interests, thus insuring joint component usage.

Boston's Quincy School is an imaginative and complex shared-facilities project. Developed in conjunction with the expansion of the Tufts-New England Medical Center, the school will share its own and adjacent facilities to benefit both community and students.

The history of the development began with a desire to expand the hospital complex and its services throughout the center of Boston — a crowded and diverse area. A new public school was needed in the area. The medical center's staff recommended that the enlarged complex become the hub of neighborhood activity and incorporate community facilities into its general design. These facilities would include housing, schools, community health facilities, small city halls, social and family service areas, and a "drop-in" center for after-school recreation. The planners hope that the public facility will offer so many services that ". . . the key can be thrown away."

Two playgrounds were planned for the roof of the proposed school — one on the level above the second-floor parking area and immediately adjacent to the day-care center; the second on the top of the building at a forty-five foot elevation. High-rise housing towers surround the school-roof playgrounds on three sides. Planners reasoned that roof-top playgrounds would provide an outdoor play area that could be used for recreation or classwork, could be accessible from classrooms, would be safer than at-ground level, and could be used extensively by residents throughout the day.

In another instance, a 100′ x 175′ site adjacent to Manhattan's P.S. 166 was made available by the West Side Urban Renewal Project. Originally designed by the Board of Education, the playground was to be enclosed by a 16′ high chain-link fence, include four basketball standards, and offer five pieces of manufactured play equipment, themselves surrounded by a 6′ high fence.

The community felt that a better playground was needed in an area as experimental as the West Side Urban Renewal Section. The existing site-development budget was too low to cover more than the estimated costs of the original playground. The Astor Foundation subsequently granted $195,000. for the design and construction of a playground on the school site that is now used and operated as a joint school-community project.

The concept of a joint or combined occupancy offers one of the most imaginative and effective new programs for providing land in the city. Trinity School, a private boys' school in New York City, occupies a site jointly with a two-hundred-unit apartment tower. The architectural firm which designed the Trinity project outlined the objectives of such a program:

"1. The need to expand school facilities and the desire to do so at the school's present location in the city. This desire was reinforced by the improving character of the neighborhood resulting from the West Side Urban Renewal Program.

"2. The inability to expand on the only site contiguous to the school, a 30,000 sq. ft. urban renewal parcel designed for housing and commercial use.

"3. The desire to avoid disruption of operations by a major alteration of its present school.

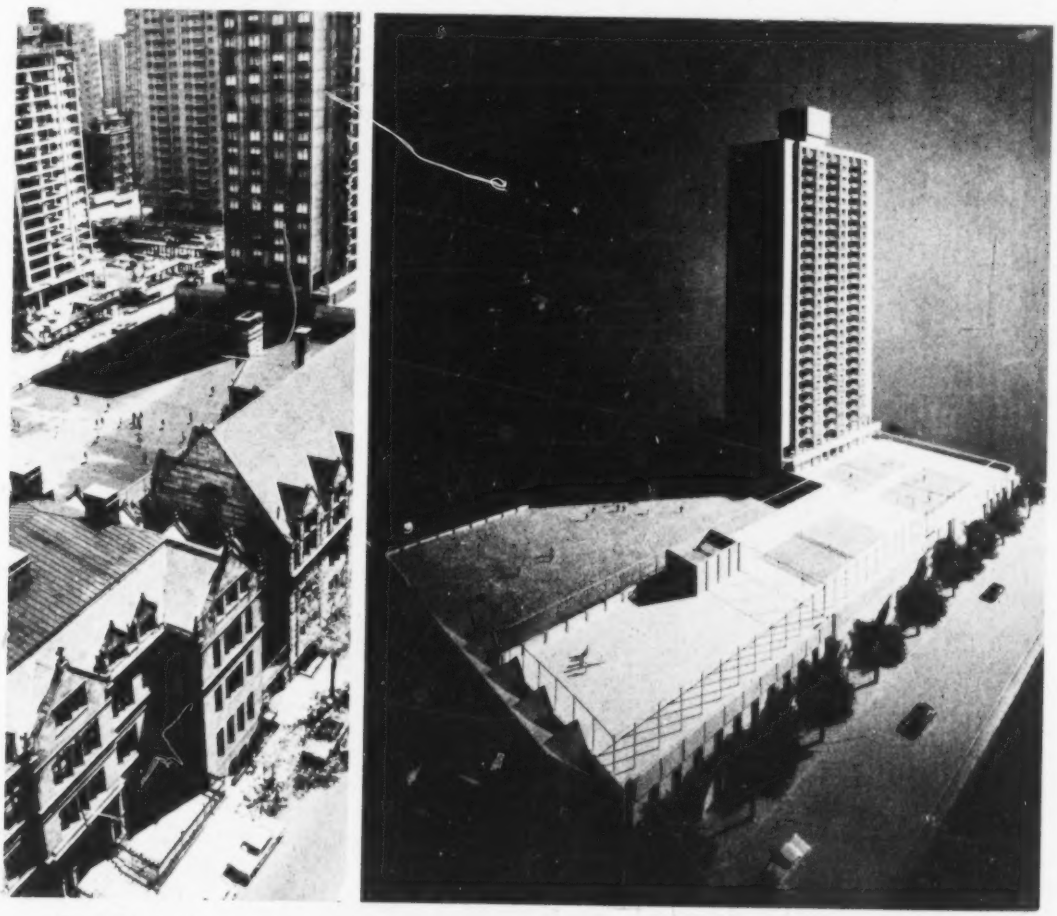
"4. A determination to preserve the school's existing playing field — a unique recreational area in the heart of the city.

"5. The conviction that the school's expansion program offered an increasingly positive involvement as a force in its community."

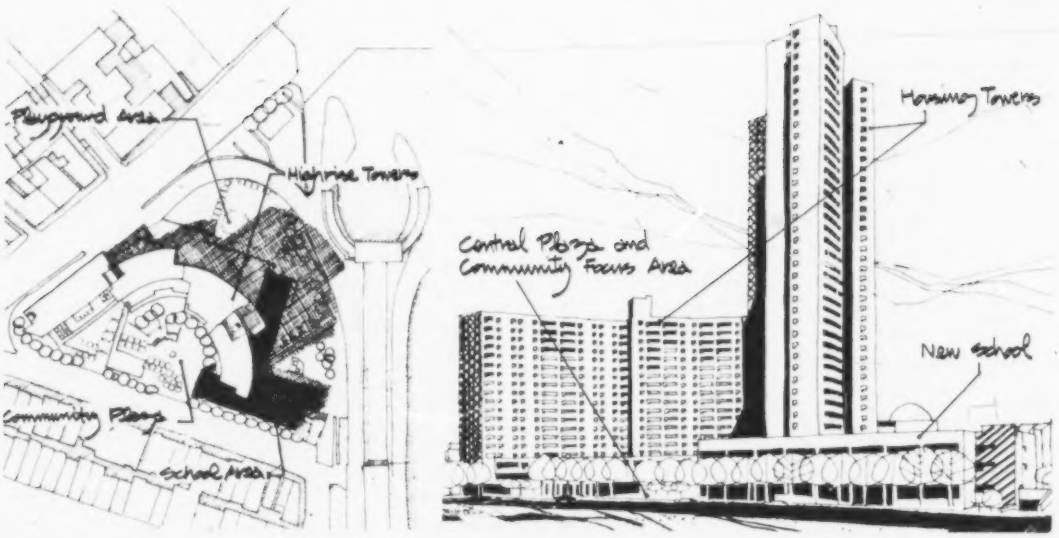
P.S. 166
New York City

The old Trinity School served three hundred sixty students, and now accommodates an additional three hundred sixty. The new structure is a twenty-nine story building with school facilities on the first three stories. The roof of the apartment building's parking garage is used for a school playing field. Tennis courts are located on the school roof, and the loggia floor of the tower complex contains other playground facilities.

Trinity School
New York City



The Educational Construction Fund of New York City is currently pursuing a variety of projects in which school facilities are being incorporated within a total development concept. With this approach, the school facilities are recognized as an essential part of development for housing and commercial space as well. In their Chinatown Housing and School Project (P.S. 124 M) in lower Manhattan, this concept is clearly seen. Here is provided an elementary school for twelve hundred children, seven hundred sixty-two dwelling units, community facilities, and commercial space. Interesting as well is the distinctive curvilinear shape, due to the site being adjacent to a curving approach to one of Manhattan's bridges, and the intentional juxtaposition of elements to keep public spaces located in sunshine.



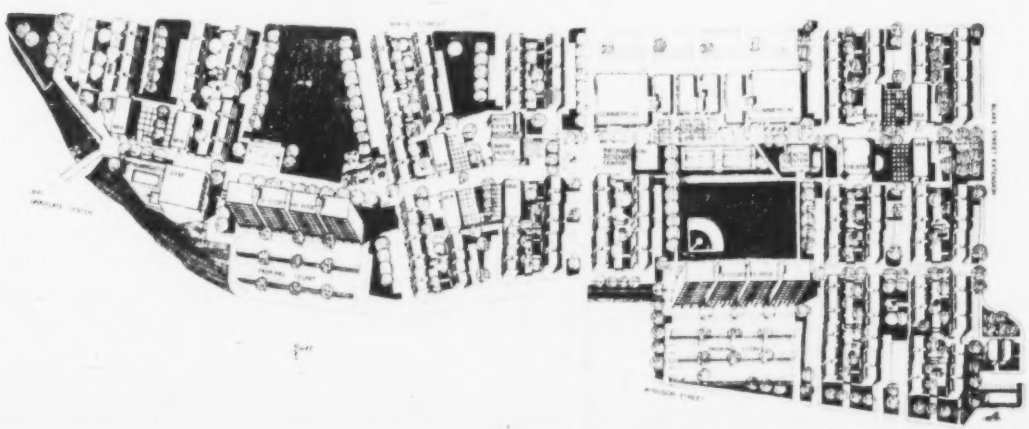
Chinatown Project
New York City

E. "EVERYWHERE" SCHOOL

Another new and ingenious concept, the "Everywhere School," projects the possibilities of school-neighborhood cooperation for site development in a crowded city.

It is located in the South Arsenal Area of Hartford, Connecticut, and encompasses fifty-six acres. The total population is about five thousand people. Most of this area is scheduled for urban renewal, and sixty per cent of its residents are on welfare. A community-action group called SAND (South Arsenal Neighborhood Development Corporation) proposed that renewal plans include a new school that could be totally integrated into the life and activities of the area.

One of the primary goals of the redevelopment plan was to incorporate social as well as physical changes in the total renewal scheme. This goal coincided with the concept of the "Everywhere School," which is simply a system of education that permeates an entire neighborhood, physically and socially, and calls upon it daily for personnel and facilities.



SAND Development
Hartford, Connecticut

An excerpt from the statement of SAND illustrates the degree of integration between school and community:

"The South Arsenal Project will provide housing for approximately twenty-five hundred people. It will be constructed over a period of three years to minimize re-location problems.

"The housing will be of two general types: Three-story walk-up over an open ground floor (MIA — multi-instruction area — location) and nine-story elevator buildings over an open ground floor (available for office space, neighborhood services and commercial use) . . .

"The site plan for the neighborhood divides the physical environment into two areas: One hard-surfaced for pedestrian circulation and housing access, and one soft-surfaced for recreation. Each MIA opens into soft recreation surfaces. All the soft areas lead to the major playfields.

"Motor vehicles are confined to the periphery of the neighborhood except for emergency use.

"School Facilities Location:

"School facilities are separated into two specific categories:

"a.) The Multi-Instructional Areas are located on the ground floor in four-story buildings (three stories of housing are located above the MIA). The reasons for this are:

1.) Accessibility-Diffusion: The work-learning space will be entirely accessible due to its ground-floor location and the diffusion of MIA's throughout the neighborhood.

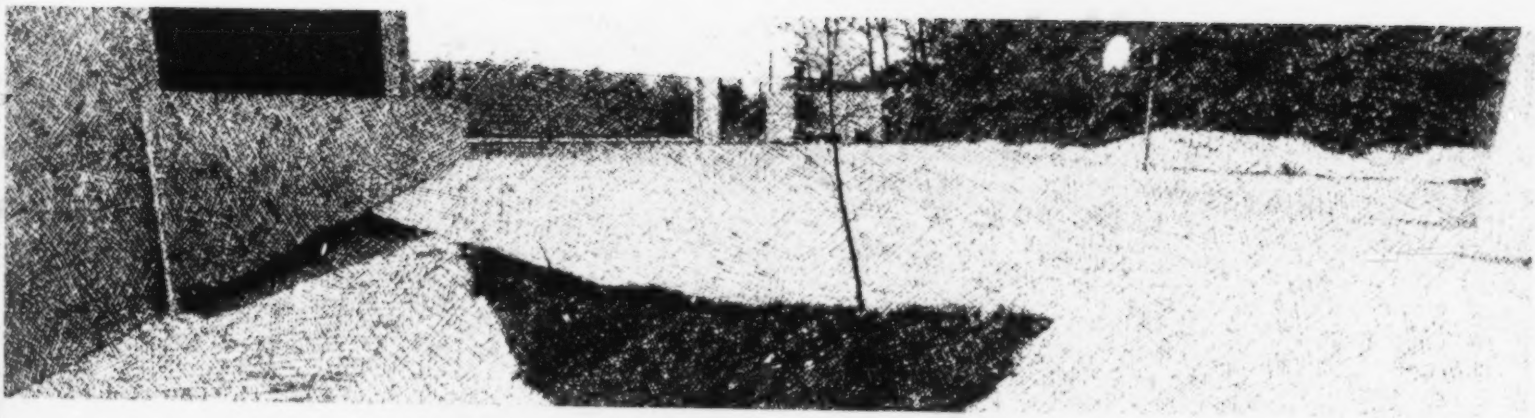
2.) Economy: Housing employs the space above the instruction area, producing a double utilization of land coverage.

3.) Flexibility: Nine of the fifteen presently planned housing structures could contain MIA's. However, the same space that can serve as a MIA can also house commercial facilities — shops, offices, etc. Thus, the number of MIA's can, in accordance with contractural arrangements, be expanded to meet the demand.

"b.) The other facilities — arts building, gym, information-resource center, theatre, etc. — are diffused around the pedestrian spine that inter-connects the MIA's. This type of diffusion allows activity to be spread throughout the neighborhood environment for pursuing special interests.

In general, the diffusion of elements allows the learning system to encompass the whole neighborhood; in fact, the entire ground floor of the neighborhood is the learning environment."

It follows, then, that the school site planned with community participation does provide more relevant facilities. The type of outdoor recreation facilities included on most innovative school sites has been determined to the greatest extent by the age group using the site as represented by the school population. Standardization of outdoor facilities and design necessary for purchasing, maintenance, and administration in many city school systems is slowly being set aside in favor of distinctive equipment tailored to a particular site and community. Pre-school, elementary, middle and secondary schools, in many cases, have distinctive outdoor recreation site facilities which have been modified by the inclusion of facilities for adults. Several cities are providing for school play facilities to be lighted at night and partially covered for use in inclement weather. Additional application of these principles can begin to formulate a closer relationship between our schools and their communities.



V. EXPRESSING ENVIRONMENTAL RELATIONSHIPS

Because the urban child grows up in the center of the city, he may know little about his relationship to a larger environment. In fact, he often finds his immediate surroundings quite hostile. Environmental education may help an alienated city child by teaching an understanding and appreciation of his surroundings and his relationship to them. The current national interest in environmental education has led to a proliferation of programs which is met with a dearth of teaching facilities on urban school sites.

A. GOALS

The general goals of any environmental education program are summarized in a proposal for environmental education at the Reedland Woods School in Marin County, California. This report states that "the teaching staff of the school must look upon outdoor areas as an extension of their classrooms." These goals are:

1. To approach self-discovery problem solving and multisensory learning in many varied ways
2. To develop changeable working areas for study and experimentation by individuals, groups and classes
3. To employ climatic situations for weather study
4. To develop student awareness of urban problems in relation to environment

An EFL publication, **Environmental Education/Facility Resources,** made the following statement:

> It's easy to overlook the most obvious and most easily accessible facilities in favor of the expensive and remote places which sometimes prove to be impractical for education use. Every school child has a schoolhouse, and every schoolhouse has its own grounds. These schools and grounds offer the most accessible facilities for environmental education.
>
> Theodore Osmundson, former president of the American Society of Landscape Architects, received support from the American Conservation Association and EFL to make a nationwide survey of environmental programs and facilities. He concluded that the school site is "our richest untapped environmental education resource." William Stapp, Professor

of Resource Planning and Conservation at the University of Michigan, says, "The potential for developing environmental education facilities within a school is limited only by the boundaries of one's imagination, resourcefulness and enthusiasm."

As a place for environmental education, the school and its site offer these characteristics:

- They are readily available and familiar to the students.
- Their use involves no major logistical problem, such as transportation, insurance, rescheduling of teachers and students, food service, special clothes and equipment, shelter.
- They are good places to begin an environmental education program, because all they require is an interested teacher with a minimum of administrative support.
- If the school and school site are understood and made "revealable", they generate a wide variety of environmental opportunities. In other words, the school and its site can provide a rich program if we're perceptive and motivated enough to use them effectively.

A program of environmental education can begin with the school and its site with no initial capital investment. After the program is underway, modest capital investments for equipment such as testing devices, collection, examination and display apparatus can be added. Eventually, special laboratories, aquariums, vivariums, greenhouses, and other improvements can be added, but they are certainly not necessary to launch the program.

To realize the full potential of the school facility as a learning laboratory, certain preliminary steps should be taken. These were stated in a previous EFL report, **Places for Environmental Education:**

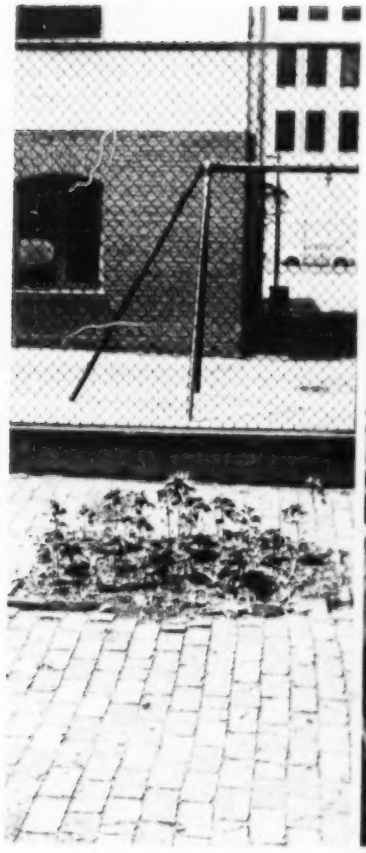
- Recognize that the school plant and environs can be used for environmental studies.
- Inventory the school site and plant to identify available resources and determine how they can be best used, e.g., geographical characteristics of the site, physical features of the building, environmental problems on the site.
- Identify good and bad characteristics of the site, programs needed, facilities necessary for a comprehensive program.
- Determine site areas and nearby areas that can be developed.
- Invite student, faculty, and community participation in the planning process, priority determination, and implementation.
- Open the school plant for extended programming.
- Establish an environmental studies laboratory within the plant.
- Reveal the school building's structure and mechanical services so students can see how the building works.

There are currently many programs for environmental education which use the school site but which do not necessarily result in the redevelopment or redesign of the school site in any way. Some of these educational programs have the students ask the question, "What happens to city rain?", and have the following types of educational exercises:

> During a heavy rain or when the snow is melting, find places on the school site where small streams of water are draining off. Watch where one leads. What happens to the water that falls on building roofs, parking lots, sidewalks ,and playgrounds?

These programs then give the students problems such as the following:

> Calculate the area of the school site or part you want to study. What percent is covered by buildings and pavings? What percent is trampled so hard that no water can seep into the soil? What percent is covered by vegetation, lawns and shrubs? The problem is then posed as to how many gallons of rain fall in one year on the school site.



Left:
Stevens School
Washington, D. C.

Right:
Mildred Green School
Washington, D. C.

There are environmental education programs using the school site which have to do with keeping trash from becoming litter. The students are given the following problem:

> Study the accumulation of trash in the classroom, in the school building, on the school site and around the school. Prepare a map of the inside of the school building and another of the school site and surrounding sidewalk. Mark on the map the location of the trash containers. Watch the people traffic as students come to the school and as they leave. Mark on the map the areas where students eat and where they might be carrying paper. Find out if trash containers are in the places where they are needed. Are they large enough? Are they emptied often enough?

The students then are asked to plan ways to solve the litter problem and given some positive suggestions.

In these same programs, the students are introduced to the school site as a resource. In this case they are exposed to the planning and development of the school site and are asked to assist in the making of plans and development of programs for development of the school site for environmental education purposes.

Mrs. Rose Blaustein, Science Consultant to the New York City Public Schools, offers an expert's opinion of environmental study in the city:

> "Let us take the school yard. The children are taken out into the school yard to examine the kind of rock materials; the effect of weathering on the rock materials. They might go into the school yard to see the kinds of animals and plants they might find there. What kinds of animals and plants do you find on a concrete playground? Well,

you can find ants, you can find little plants growing in the cracks. You can see birds around. There are many things that a child can see which will be important to him, and then the problem comes up: How can this living thing survive in this kind of environment?

Then you go over to the edge of the lawn near the school yard and examine. Let us look for the kind of plants that live here. Let's examine a small area and find all of the animals and plants that live here. What kind of soil is there and how is it affected by the animals and plants, and vice versa?

Then we might go on a walk around the neighborhood. What animals can we find in our neighborhood? Let's limit ourselves to the animals. How do they live. How do they survive in this kind of area? One thing I have done with children — and with the other teachers as well — is to walk around the school fence. How did these leaves get here? Are they piled up? Let's examine the leaves. What kind of trees are there around here? What condition are these leaves in? Why is it that the leaves are against the fence and not on the sidewalk?"

B. PROJECTS

On the site of the Morgan Community School in Washington, a section of the school yard was converted into an environmental study area. An empty lot next to the school building has been planted with vegetation to assist in the educational program.

An interesting educational program which used an urban school site that neither dictated form nor suggested facilities for the development of the site took place in Berkeley, California, and involved both elementary and junior high schools. Classes in Design for the Future, for fourth, fifth and sixth graders, were given at Columbus Elementary School; and classes in Environmental Design for twenty-five students, at Willard Junior High School. All classes were designed to help create, with the students, an awareness of their environment, both natural and urban, and the possibilities in its development.

City of Los Angeles School System

At Willard Junior High School, the course lasted for four weeks, two hours each day, five days a week. The students analyzed their total global environment as well as the urban structure in which they and their school were situated. After analysis and the development of comprehension and understanding, they suggested, designed and built models of cities of the future which would overcome some of the problems of the contemporary urban agglomeration. In addition to these creations, they used the school site to build a geodesic structure, patterned on the principles of Buckminster Fuller. This program grew and required whatever quality of space was available to accommodate the activities which developed from it.

Various national programs are being instituted, particularly those of the National Park Service (NEED and ESA), the United States Forest Service and the Environmental Education Program of the U.S. Office of Education. The aim of these programs is to encourage even greater use, inventory and programming of the urban school site for environmental education purposes. These are planned to include the areas of urban ecology, the emerging urban cycle, succession studies, environmental inventory and monitoring.

Many old school sites have been redeveloped in order to make them more usable for environmental education purposes. There are a number of excellent examples of this type of activity throughout the United States. Among these are the secondary and middle schools in the City of Los Angeles. For a number of years one of the primary programs in the city schools in Los Angeles has had to do with vocational agriculture. Toward this end, plans were prepared by the Office of Buildings and Grounds for the development of outdoor agricultural and botanical plots on the school grounds. These were formed by pouring concrete sidewalks on a 20' x 40' grid. The areas inside the sidewalk grid were left at turf until such time as the students or faculty wished to cultivate a particular section of the grid. At that time, the soil was cultivated and the area was planted by the students and teachers. These areas had extreme usefulness in the past for agricultural and botanical purposes. With the advent of interest in environmental education on urban school sites, these areas have become extremely valuable resources for use in school site environmental education programs. In this case, the existing facilities were utilized for new purposes.

Open Space, Inc., is a non-profit educational development corporation with an emphasis on environmental education. In recent years, this organization has worked with the Los Angeles Unified School District in developing an environmental education workshop through the use of pilot school activities. In this capacity they supplemented and assisted school site development for environmental education at Braddock Drive Elementary School in Western Los Angeles. The biggest project at Braddock School consisted of turning a nondescript patch of dirt next to the tool shed into a garden intended to teach ecology, botany, and a host of other subjects. The students built a scale model of how the garden would look when completed, planned a dome which will be put in the garden and which will be covered with plastic to make a greenhouse.

In some recent cases, entire sections of the school site have been drastically redesigned for environmental education purposes. Among such instances is the Madison School in Washington.

The Madison School had been a typical urban school with a forbidding brick structure, extensive areas of asphalt, excessive chain link fences and a small area of eroded earth between the sidewalk and the chain link fence surrounding the playground. A teacher-training class in environmental education at the D. C. Teachers College, in their search for a prototypical school site to use for environmental education programs, chose the Madison School.

Madison School
Washington, D. C.

Left: Madison School
Washington, D.C.

Rt: Stevens School
Washington, D.C.

Stevens School
Washington, D. C.

Through a cooperative effort with the National Park Service and the D. C. Public Schools, the Madison School site was designated as an urban Environmental Study Area (ESA), to be developed as an introduction to environmental diversity. Its location made it usable by ten nearby public, private and parochial schools in the inner-city neighborhood.

In order to indicate the diversity possible on the limited school site, the National Park Service staff developed a basic landscape plan which provided for five life-zones or ecosystems to be established on the eroded area of the school property. These life-zones were to represent grassland, desert, semi-arid, crop land and forest. The National Park Service staff worked with the students and the teachers in a program of establishing activities for each grade which were correlated to the science curriculum guide for the city schools. The students, working with Park Service personnel, examined the soil, studied erosion and drainage problems, and examined the facilities which were available and that could be used to maintain plants and soil. Since it was determined that the existing soil was not fertile enough to support plant life, a retaining wall was constructed and topsoil was added to the area. Plants were brought into the site and the children assisted in the planting and care that followed.

After the school year had ended, the enthusiasm and work program which had been initiated during the school year was carried on by community effort and a summer program entitled, "Our Block of Earth." Its purpose was to preserve and enhance the existing urban Environmental Study Area (ESA) and to promote an awareness and concern for the environment among community residents. These summer goals were made possible by a grant from the Society for a More Beautiful Nation's Capitol. These funds were used to hire a community coordinator, four neighborhood beautification aides, a youth garden consultant, and to purchase the necessary tools and garden supplies. The community coordinator also had available the supporting services of a science consultant, the personnel of the National Park Service, the use of National Park Service facilities, and assistance from various other government agencies. During the summer, the staff and neighborhood children worked on watering, weeding and mulching the study area and maintained it throughout the summer until the following school year.

The area was also used as a focus for excursions and as a place of teaching for the Youth Serving Youth Tutoring Center. This group operates a summer program under the D. C. Public Schools Department of Pupil Personnel and is composed of junior high and elementary school children. The school personnel were assisted in this redevelopment of the school site by landscape architects and other staff personnel from the D. C. Department of Beautification.

C. PLANTING

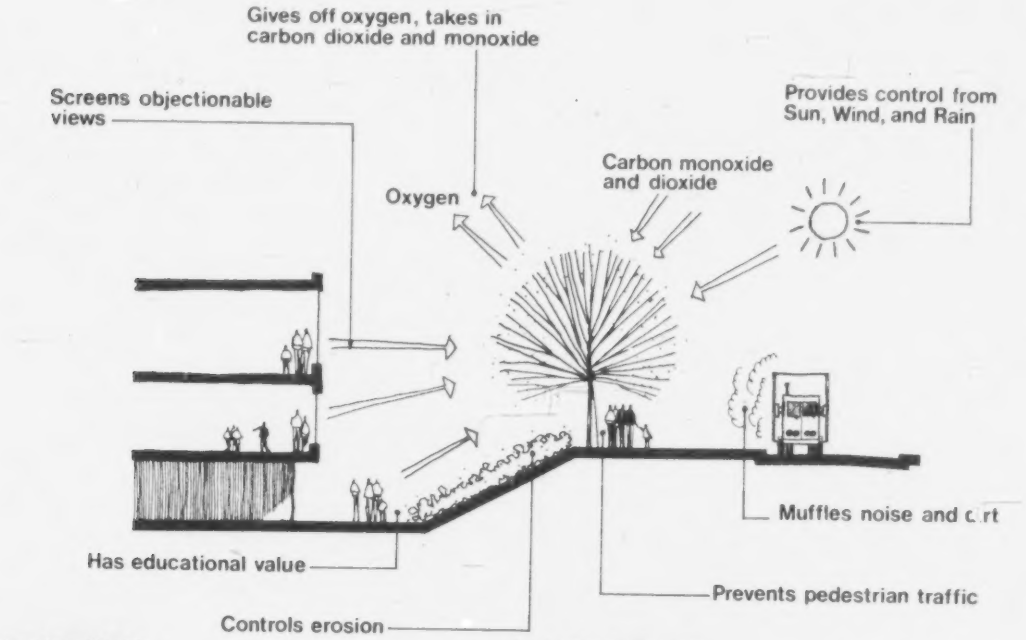
Urban school site landscape planting has not been used solely for beautification. When used most successfully, it has been minimal, functional and impressive and has provided areas of massive greenness with a minimum of necessary attention.

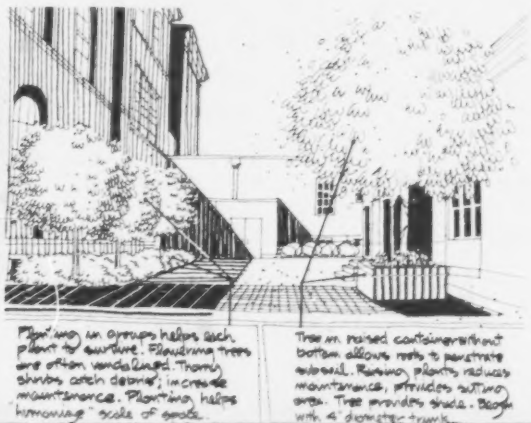
Planting around the city school is used differently than on the typical suburban site. Turf is usually out of place on most high-density urban sites. The most desirable plants have been those that blossom in the spring, bear foliage or fruit in the summer or winter, and change color in the fall, or with other all-season interest.

Urban site planting must be as vandalproof as possible. However, it should not be so protected that interested observers cannot touch the foliage, especially when used in programs of science or environmental education. Most successful plantings require little weed-

ing and pruning, and have been cultivated in raised beds that require no edging and help to discourage vandalism. They have needed little replacement and, perhaps for their own protection, are somewhat defensive in nature, with tough leaves or bark or fine thorns. One of the chief factors that can help insure the success of urban planting is sufficient size when planted. It is very unlikely that a whip of a plant will survive the conditions that it must when planted in an urban situation. Urban conditions require strong, healthy plants, larger to begin with than their suburban counterpart.

Functionally, urban school planting can form outdoor "rooms" or enclosed areas; reduce glare and reflection; screen objectionable views; act as elements in controlling privacy, sound, traffic, erosion and climate; afford architectural relief; introduce natural elements into urban surroundings; act as exterior sculpture; serve a commemorative purpose; and be used in the educational program.


Gives off oxygen, takes in carbon dioxide and monoxide
Screens objectionable views
Provides control from Sun, Wind, and Rain
Carbon monoxide and dioxide
Oxygen
Muffles noise and dirt
Has educational value
Prevents pedestrian traffic
Controls erosion


Planting in groups helps each plant by nurture. Flowering trees are often vandalized. Thorny shrubs catch debris; increase maintenance. Planting helps harmonize scale of spaces.
Tree in raised container without bottom allows roots to penetrate subsoil. Raising planter reduces maintenance, provides sitting area. Tree provides shade. Design with 4' protective trunk.

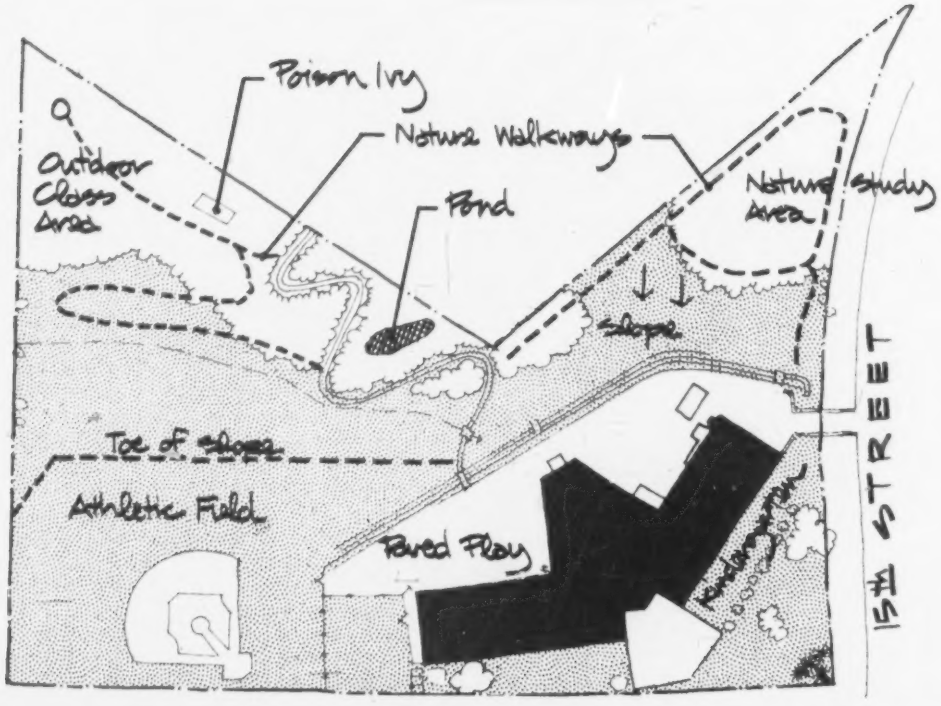
The Stevens Elementary School near downtown Washington was built in 1868 of handmade bricks. Currently, the school is completely surrounded by commercial properties, and the school site consists of asphalt, concrete and chain link fence; a brick sidewalk extends from the curb line to the fencing enclosure. Thus, the entire site was paved and allowed little or no opportunity for environmental study or growing natural elements.

The principal of the school, working with one of the science teachers, obtained technical assistance from a landscape architect from the Office of Community Beautification of the District of Columbia. Initial financial support was provided by the Parent-Teachers Association to determine a way to create areas for planting by removing small sections of brick along the fence line of the playground and adjacent to the office building, thus exposing small patches of soil.

Mildred Green School
Washington, D. C.

Students used potting soil for window boxes inside the school where seeds of many varieties were planted. During the first spring after the openings in the paving were made, many of the young plants were placed outside in prepared areas. Workers in surrounding offices encouraged the students, and in response, sixth graders at the elementary school wrote letters to members of the business community in the surrounding area inviting their participation in the student program. Two companies in adjacent buildings responded with plant materials, the use of a hose, water supply and advice. The project was a focal point of interest to the entire surrounding community. The school received a Certificate of Merit from Mayor Walter E. Washington, on behalf of the 1971 Beautification Program of the D. C. Department of Environmental Improvement. Two plants were added to the landscape and dedicated to two distinguished educators who had significant association with the history of the Stevens School. A student in a nearby university returned during a period of drought to water the plants. In a variety of ways, a small area for environmental education was provided on an otherwise impossible urban school site.

In another instance, the District of Columbia Department of Education, in conjunction with the Soil Conservation Service of the U. S. Department of Agriculture, established project



Mildred Green School
Washington, D. C.

CLEAR (Creative Learning Experiences About Resources). Its purpose is to develop schoolgrounds as outdoor laboratories for learning and experiencing conservation and for environmental education activities. The program originated at the Mildred Green Elementary School, located in a low-income, densely populated neighborhood in Washington. Despite its innercity location, the school grounds are larger in size than other sites in the city and contain an established grove of trees and other plantings. The school is situated at the base of a steep hillside which was eroded, littered and overgrown. Plans for the development of the site were prepared by the teachers at the school, working in cooperation with officials of the Soil Conservation Service. These plans were to be followed by the students, the Parent-Teachers Association, the Board of Education, the school maintenance department, and other local volunteer donors of services and materials.

Mildred Green School
Washington, D. C.

Plans include long-range planting schedules so the class will have a personal interest and involvement in developing the site over a period of several years. This will also make it possible for each student to have some experience in caring for particular plants on a continuing basis, observing the conditions necessary for growth and relationships among plants. The students worked under the direction of teachers, school maintenance personnel and personnel from the Soil Conservation Service to clean and clear the site. The students then began working with science teachers in planting trees and shrubs on the school site and on the revegetation of the cleared hillside.

The D. C. Board of Education constructed the necessary retaining walls and the Soil Conservation Service assisted in providing the required drainage channel down the hillside. Grass seeding and vines were provided from a variety of sources.

The following learning activities are being developed, using the redeveloped school site:

a.) The process of erosion and sedimentation.
b.) Water movement into the soil
c.) How plant roots help hold soil in place.
d.) How plants protect the surface soil from erosion by wind and water.
e.) Measurement of rainfall and snow accumulation.
f.) Measurement of plant growth rate under different conditions.
g.) Arithmetic exercises involving natural resources.
h.) Relationship of plant life to kind of soil.
i.) Relationships of insects and other animal life to plant life.
j.) Classification of plants.
k.) Identification of rocks.
l.) Use of natural materials for arts and crafts.
m.) Understanding of line and form, and color in the natural world as they relate to art.
n.) Uses and processing of various natural resources.
o.) Relationship of life forms in a pond.

Itemized below are some of the key projects in designing and converting the Mildred Green Elementary School site into an environmental education center.

1.) A retaining wall will be built to halt erosion of a bank along the fence line. The soil above the fence will be sloped, fenced and planted with roses.
2.) The existing trees and plants, together with others to be added, will be used for identification purposes, growth study and bird and wildlife study.
3.) A steep gully will be developed as a site for a soil profile study.
4.) To the right of the fence line trail, trees in a variety of species such as white birch, walnut and hemlock, will be added to the existing trees for study purposes.
5.) A pond will be constructed for water studies, water plant studies, and water related insects, animals, etc.
6.) The pond area will have turf placed on a steep area as a water control and management project.
7.) Wildlife plantings will be established. A small fenced area of poison ivy will be left for study purposes.
8.) A section will have benches or logs for the children to sit on while working on projects.
9.) The location of several teaching devices such as rain gages, wind gages, and other instruments for study and observation.

As another example of a school incorporating areas for environmental education, the site for the Honeydew Elementary School in Renton, Washington, has twelve acres of land

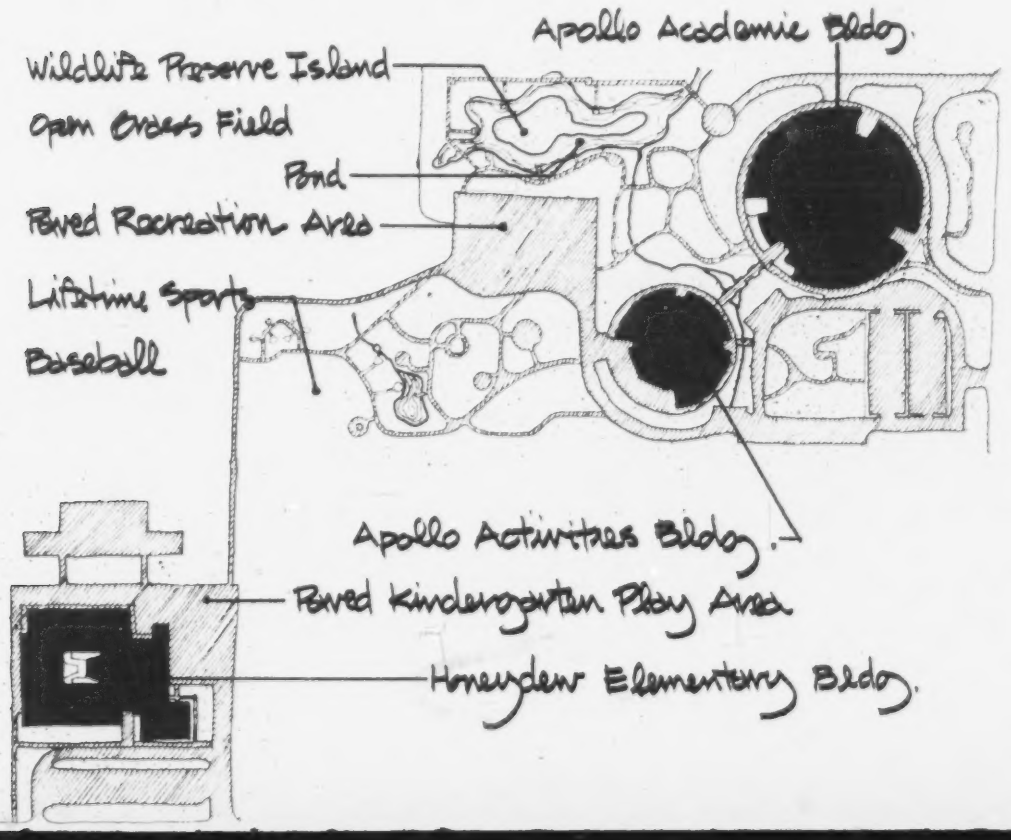
which had been completely bulldozed prior to construction of the school. Filling, cutting and grading had removed all of the natural vegetation and had mixed and heavily compacted the soils on the site. One portion of the site, approximately four acres, was very poorly drained and had been unfit for use during a large part of the school year because of standing water. A few plantings had been made around the building even though little of it was functional in any substantial way. Youngsters in classrooms on the west side of the building had been exposed, during spring and fall months, to direct sunlight and reflected heat from the blacktop play areas which extended from the edge of the site directly to the wall of the school building.

In 1967 it was proposed to build the Apollo Middle School on twenty acres immediately adjacent to the Honeydew School site. The site for the Apollo School contrasted sharply with that of the elementary school site. It consisted of marshy areas, a number of species of native trees, flowers, shrubs, animals and birds, and provided an opportunity for environmental study areas while preserving and enhancing the site. The following philosophy was adopted by the consultants working for Renton School District #403 in their development of school sites:

"In nearly every community, except for streets and roads, the schools own and control more land than any other public agency.

"Community needs for open space, recreational, cultural as well as educational support must become a greater factor in the selection and development of school sites.

Honeydew/Apollo School
Renton, Washington



Facilities too must take these same community support needs into consideration. The development of the school site should be viewed as a major factor in establishing the atmosphere within which the education of the students will take place. It also plays an important role in developing the attitude of the youngster toward the school.

"As we extend the use of the school and site, we must identify and consider many new factors. As the site is developed, we need the understanding and active support of students, adults, community groups, local organizations and governmental agencies. We need sufficient involvement to achieve full commitment to the use, development and maintenance of the site. Without such a commitment, financial, supervisory and maintenance problems may result in a school which functions in relative isolation from the community it is to serve. We can no longer tolerate a fenced bastion of dirt and blacktop, open only during appointed hours and planned more for ease of supervision and maintenance than for the individual and collective needs of residents of the community."

The philosophy upon which the Apollo Middle School was designed and focused was as follows:

"The freeing of students and teachers from restrictive program requirements and building limitations, thereby permitting freedom to explore the social and physical environment. The middle school program is seen as focusing on the child and what is appropriate for him."

It was the proposal of the designers to link the two school sites and to extensively develop the Apollo site with a wildlife preserve island, outdoor classroom area, paved game and display areas. Nine different activity zones were developed on the site, one of which was an environmental study zone. The common native trees and shrubs of the State of Washington were utilized as the basic plant materials for the total site. Extensive use was made of parts of the site for lifetime sports and activities.

The plan which was developed by the consultants and designers in close cooperation with the students, the faculty, administrators, parents and teachers and local civic and social clubs is an exemplary use of an urban school site for educational and recreational purposes of all types.

In still other instances, entire communities have been structured for environmental education purposes. In Lowell, Massachusetts, for instance, the education component of the Lowell Model Cities Agency developed a program which illustrated and revealed the environmental educational opportunities not only of the school sites, but of the surrounding areas and throughout the community as a whole.

In Washington, The New Thing Arts and Architecture Center has developed a structuring of the entire Adams-Morgan community for use in "revealability" and for environmental education purposes utilizing the total resources of the community, including the school sites contained within the community, which is a small section of northwest Washington.

The urban student, since he has generally little direct contact with some of the basic elements of the natural processes, probably is in more need of environmental education and environmental education facilities than is the suburban or rural school student. At the same time, the urban school site is probably less conducive and less able to provide those opportunities and those facilities necessary for this required environmental education. Thus, it is imperative that urban school sites be developed as extensively and carefully as possible to provide these opportunities. Many strides have been made and more yet are essential to utilize fully this valuable resource.

SUMMARY

The projects discussed in this book indicate that there are isolated attempts toward making urban schoolyards more useful to the communities they serve. This is happening because people recognize that the school site has greater potentials and responsibilities than becoming a wall-to-wall pavement with stereotyped play facilities supplied regardless of the differences in user backgrounds or interests. A conscious regard for the appropriateness of certain facilities should be fundamental in the design process of the city school site. There, within an extremely tight piece of real estate, is where a great many things must take place, and there is not always room enough for all of them. Priorities must be set and methods of compaction applied, all with the purpose of gaining the greatest benefit for that particular group that it serves.

In addition to the requirement for program priorities and efficient use of source, the city school site is also responding to its requirement of being a part of community life. The American Association of School Administrators stated, "The school site is more than the setting for a building. In the midst of a teeming city, it may help to create an over-all environment that serves as the educational focal point of the nearby community and sets the tone of the neighborhood in which it is located."

The same organization also said, "The development of the school site has a direct bearing on learning and can open up new vistas for outdoor education. It invites new teaching techniques, it calls for special areas designed to meet the unique needs of different types of learners. Young children need grounds specifically designed for them, and the physical education and athletic programs require special consideration."

In attempting to meet this challenge, the school site in the city is extending itself into the community by finding ways of providing and/or sharing its facilities for community use. Meeting rooms, headquarters space for volunteer groups, and shared resource facilities and outside spaces are developed with greater participation of the community in mind. Furthermore, the space around a city school is now recognized as an excellent educational opportunity to display the balance between man and his environment. School sites are where students can gain a greater understanding of the myriad processes and functions (such as water run off, water supplied to plants, the purpose of hydrants, etc.) which are interwoven into the urban fabric, and their possible effects on the viability of the urban dweller.

In summary, the words of Theodore Osmundson seem appropriate: "Ugliness and austerity are not requisites to education; in fact, the small investment required to create rich and handsome school environments may yield incalculable benefits to society."

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Landscape Architect

Quincy School Boston, Massachusetts	Quincy School and Community Council Quincy School Project Staff Planning Office Tufts New England Medical Center
Tufts New England Medical Center Boston, Massachusetts	The Architects Collaborative Cambridge, Massachusetts
P. S. 166 New York, New York	M. Paul Friedberg and Associates Landscape Architects and Urban Designers New York, New York
Trinity School New York, New York	Brown, Guenther, Battaglia, Galvin Architects New York, New York
Everywhere School Hartford, Connecticut	South Arsenal Neighborhood Development Corporation Olive Walker, Chairman Huntington, Darbee and Dollard Architects Hartford, Connecticut
Chinatown School (P. 124 M) New York, New York	New York City Education Construction Fund Horowitz and Chun, Architects New York, New York
Morningside Elementary School New York, New York	Frost Associates, Architects New York, New York M. Paul Friedberg and Associates Landscape Architects and Urban Designers New York, New York
Beach Channel High School New York, New York	New York City Educational Construction Fund Handren, Sharp & Asso., Architects New York, New York
North Kings High School New York, New York	SMS Architects New Canaan, Connecticut Johnson and Dee, Landscape Architects Avon, Connecticut
Jones Commercial High School Chicago, Illinois	Perkins and Will, Architects Chicago, Illinois
Granville-Woodson High School Washington, D. C.	McLeod, Ferrara & Ensign, Architects Washington, D. C.
Downtown Commercial High School New York, New York	New York City Educational Construction Fund Gruzen and Partners, Architects New York, New York
Ft. Lincoln Elementary School #1 Washington, D. C.	Frey and Welch Associates Architects and Planners Washington, D. C.
Outdoor Activities for Fort Lincoln Elementary School Heath Street School Complex Boston, Massachusetts	Beatrice D. Coffin, Lawrence E. Coffin and Associates PARD Team, Architects & Planners Boston, Massachusetts

Lake Anne Nursery Kindergarten
Reston, Virginia

West High School
Cleveland, Ohio
Giddings School
Cleveland, Ohio
Timothy Dwight School
New Haven, Connecticut

Dike Elementary School
Cleveland, Ohio
P. S. 195 School
New York, New York

P. S. 141 School
New York, New York

John F. Kennedy School
& Community Center

Mission High School
San Francisco, California

Los Angeles
Unified School
District

Whittlesey & Conklin
Architects and City Planners
New York, New York
Meade Palmer, Landscape Architect
Warrenton, Virginia
Ward and Schneider, Architects
Cleveland, Ohio
Don M. Hisaka and Associates, Architects
Cleveland, Ohio
Elliot Noyes and Associates
Architecture & Industrial Designers
New Canaan, Connecticut
Joseph Ceruti & Associates, Architects
Cleveland, Ohio
New York City Educational
Construction Fund
Richard Dattner, Architect
New York, New York
New York City Educational
Construction Fund
Davis-Brody and Asso., Architects
New York, New York
John Portman & Asso., Architects
Ralph Long, Dir. of J. F. Kennedy School
& Community Center
Atlanta Public Schools
Atlanta, Georgia
San Francisco Unified School District
Corlett and Spackman AIA, Architects
Harry Saunders
Director of Buildings and Grounds

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